

# THE IRON AGE

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## Metals Studied for Fifteen Years

Review of Achievements Since Organization of Metallurgical Division of Bureau of Standards in 1913—Much Effort Put on Developing Correct Methods of Test

BY H. W. GILLET\*

IN 1926 the Bureau of Standards celebrated its twenty-fifth anniversary. It was a dozen years after the foundation of the bureau before its metallurgical work became grouped in a separate division, even though sections of various divisions, such as those dealing with pyrometry, were already dealing with problems of metallurgical interest.

The original six divisions of the bureau dealt with electricity, weights and measures, heat and power, optics, chemistry and mechanics, and were indeed organized with the idea of serving all industries concerned with those subjects.

The metallurgical and two other technical divisions of the bureau that were set up later were organized on a somewhat different basis. They are not so much concerned with absolute standards of measurement or facts relating to a particular science as they are with the application of known facts and the finding of new facts of interest to the industries they serve.

Dr. S. W. Stratton (then director of the Bureau of Standards, but now president of the Massachusetts Institute of Technology) selected Dr. George K. Burgess as the chief of the new division. The latter had been working for 10 years on pyrometric problems of very direct metallurgical interest. Trained both as a chemist and a physicist, he had become, from his own

interest in the metallurgical field, a metallurgist as well. He guided the destinies of the new division until he became director of the whole Bureau of Standards in 1923.

Fifteen years have now passed since the metallurgical division was formed. Instead of confining discussion merely to the fiscal year as has been customary in recent reports made to the metal industries through the pages of *THE IRON AGE*,<sup>1</sup> it is proposed to review some of the basic ideals that have guided the division for the past 15 years and some of the accomplishments of that period.

### Funds Are Stationary

Obviously the scope of the work is limited by funds, personnel and equipment. For the past few years the direct appropriation, the funds transferred from other Government departments and the overhead expenditures for general bureau purposes have totaled about \$125,000 yearly for the metallurgical division. About this same amount will be available for 1928-29. Since the funds have remained practically stationary for several years, so has the personnel of the division.

### Researchers Average Eight Years at Bureau

The division staff consists of 26 employees of professional grade qualified to do research, a small number of research associates (probably four for the coming year), 10 sub-professional assistants, a clerical staff of three and a machine shop staff of three. That is, the group consists of 45 workers.

As a rule there is a rather rapid turn-over of the staff

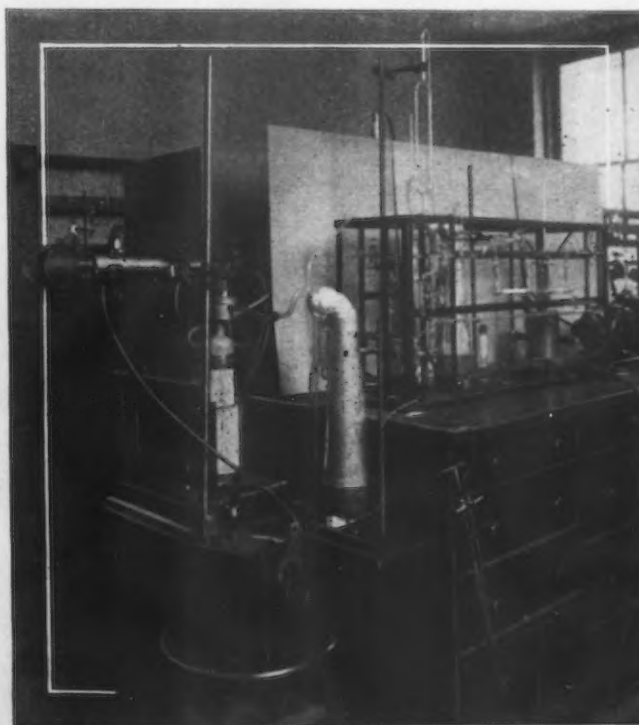


Figure 1—Improved Apparatus for Determining Gases in Metals by Vacuum Fusion. This provides for the determination of oxygen and hydrogen in a metal either gravimetrically or volumetrically, the analysis being made with circulation of gases by a mercury diffusion pump; the determination of nitrogen volumetrically; the melting of the sample under high vacuum; the loading of the furnace without relieving the vacuum

\*Chief, Division of Metallurgy. Published with the approval of the director of the Bureau of Standards.

<sup>1</sup>*THE IRON AGE*, Aug. 20 and 27, 1925; Sept. 9, 1926; Aug. 11, 1927.

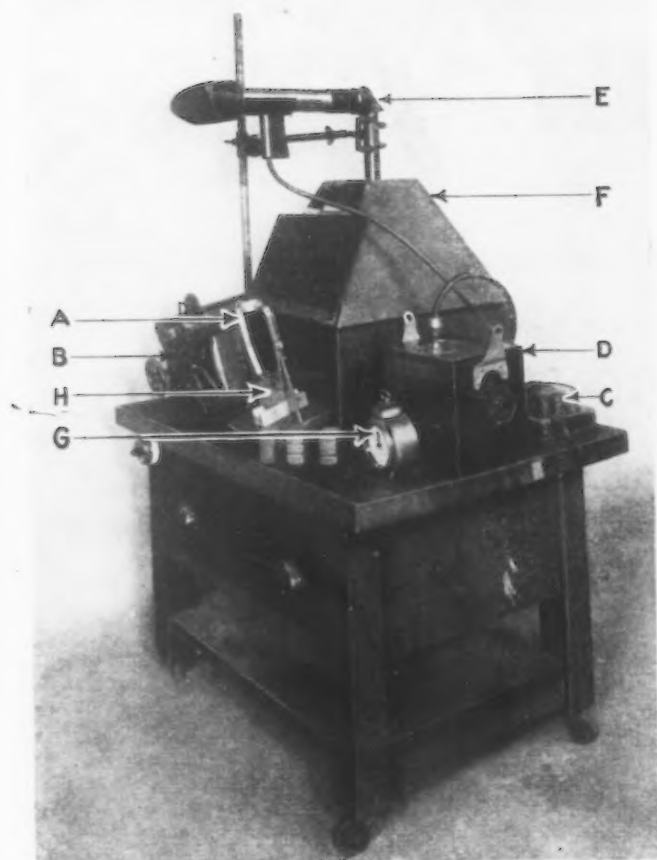


Figure 2—Apparatus for Sintering Test of Molding Sand

- A—Frame carrying platinum resistor ribbon
- B—Carbon plate resistance
- C—Ammeter
- D—Optical pyrometer meter
- E—Optical pyrometer
- F—Light-proof shield
- G—Interval timer
- H—Sand specimen

of a Government laboratory. Yet the 38 technical and clerical employees now on the staff of the metallurgical division have served there an average of six and one-half years. Six have been on the staff over 10 years. The average length of service of the 26 in the professional grade is about eight years.

Two-thirds of the entire experience gained in the work of the division is still being brought to bear on Government work, and over half of it is still available within the division. While most of the staff have spent the better part of their careers in research, they have previously done metallurgical work for 18 different firms.

#### Much Special Equipment Constructed

In the 15 years of its existence the division has bought much standard equipment. It has various types of electric, gas and oil furnaces and a cupola for melting steel, cast iron and the non-ferrous metals; foundry equipment, extensive furnace equipment for heat treatment and for pyrometric control of the furnaces; a forging press, a trip hammer, a 16-in. rolling mill, two small mills for special work, wire-drawing equipment, with a range from 1½ to 0.001 in. in diameter; two swaging machines with a range of 0.4 to 0.03 in. and a lathe for spinning. Alloys can therefore be made and formed as needed. The division has a variety of tensile testing machines, hardness testing devices, and other common testing machines of its own, besides easy access to the very complete equipment in the engineering mechanics section of the bureau. An especially complete set is available for the study of endurance of metals.

Besides the equipment for study of crystal structure

by X-ray methods, both slit and pin hole, and a densitometer for further study of the X-ray films, the fine radiographic equipment of the optics division has recently been augmented to make radiographs for study of defects in metals. The extensive metallographic equipment has also been augmented by a heavy microtome for preparing soft metals. A mechanical polishing apparatus has also been constructed.

In its particular fields of work it has constructed much special equipment, such as that for study of corrosion, of properties of metals at high temperatures, including bearing metals; for determination of gases in metals and for the production of the special refractories needed in that work and in the study of the properties of pure metals; for determination of critical points and for study of cooling during quenching; for the study of the metal spray process; for study of molding sand and core binders; for study of machinability and the wear of metals.

#### Individual Attention Given to 3600 Inquiries Yearly

Although sufficient funds, an experienced staff and complete equipment are important, little constructive work will be done by any laboratory unless this work is directed along proper lines and from the proper point of view. First and foremost, the division gets the guidance of Director Burgess, whose long service in metallurgy makes him especially conversant with its problems. Receipt every year of some 3000 letters and of visits from some 600 people asking for metallurgical information gives some idea of the type of information that is needed. For example, such a large proportion of these inquiries deals with the wear of metals that there can be no question of the need for work in that field.

The meetings of the metallurgical advisory committees, at which in 1928 over 60 practising metallurgists spent two



Figure 3—Machine for Repeated Pounding of Bearing Metals

The weight A is repeatedly raised by the mechanism D and dropped on the specimen B mounted on the anvil C. The mechanism F is to prevent auxiliary blows associated with the rebound of the falling weight. Tests at high temperatures are made by placing the furnace E about the specimen



days discussing with the bureau staff what had been done in the previous year and what should be done in the next, are of great service in orienting the work.

#### A Plant to Produce Information

The product of these men and this plant is metallurgical information. A small proportion of such information is for routine needs of Government departments; much is in the form of replies to inquiries, but the great bulk of the work is on research for publication. The list of metallurgical publications of the division itself has over 400 titles.

Some of the larger projects of the last year are: wear testing of gages, wear and other properties of railroad bearing metals, endurance of rail steel, creep in steel at high temperatures, corrosion test methods, air-hardening rivets, machinability of steel, impurities in high-speed steel, corrosion of duralumin, abnormal carburizing steel, determination of gases in metals, density of carbon steels, crystal structure, microstructure of ferrite, strain lines, protective metallic coatings, cast iron for enameling, and an extensive revision of the circular on light alloys, besides many minor publications.

#### Research Associates Utilize Facilities

Inasmuch as there has been no material change in the funds available for research for the past five years and there is a slight diminution for 1928-29, the "research associate plan," by which outside agencies pay the salaries of research associates for cooperative work at the bureau, is the only method by which the available equipment and experience can be applied to a wider range of problems. Six research associates are now in attendance. These are from the American Petroleum Institute, on corrosion of metals in the oil industry; from the American Zinc Institute, aiding in the preparation of a circular on zinc; from the Steel Castings Development Bureau, on properties of steel castings; from the Bunting Brass & Bronze Co., on automotive bearing metals; from the A. M. Byers Co., on properties of wrought iron made by different puddling processes; and from the Midvale Co., on high temperature properties of special steels. This

number could be materially augmented.

#### Important Achievements of 15 Years

Since all the work of the past 15 years has been aimed to fill the need of science and industry for new facts and most of the problems have been urged by technical societies or groups representing industry, most of the work should have been of some commercial value.

Some accomplishments deserve special mention. The work of Burgess and co-workers (and in all that follows the co-workers deserve credit which space is lacking to give) on pyrometric problems, on the  $A_2$  point in iron, on the manufacture of platinum of high purity, and on sound in-



Figure 5—Top View of Automatic Polishing Machine for Metallographic Specimens

*Rapidly rotating disk polishes three specimens simultaneously. Slowly moving cam at center traverses specimens across disk and also rotates them to avoid parallel scratches*

got and rails, certainly should be mentioned. Burgess' leadership in the important cooperative work on the effect of phosphorus and sulphur in steel is also well known.

Perhaps the most far-reaching bit of work done in metallurgy at the bureau was that of Merica, Waltenberg and Scott on the mechanism of the heat-treatment of duralumin, which paved the way for an understanding of precipitation-hardening and for the slip-interference theory. Jeffries and Archer have also utilized facts about the dimensional changes of steel on hardening from the work of Scott, and on the hardening of spark-fused iron from the work of Rawdon, as foundation stones in the structure of the theory of the hardening of steel. Merica and Waltenberg straightened out the problem of the malleability of nickel. Merica also added much to the understanding of internal stress and season-cracking of brass. Scott's work on the effect of nickel on the critical points of steel is also of fundamental value.

Rawdon has contributed much to knowledge of inter-crystalline corrosion, and (with Groesbeck) of metallographic methods. The work of Rawdon and Marshall on brittleness in galvanized malleable castings has had useful commercial application. Epstein's work on abnormal steel is highly creditable.

French has done pioneer work on the high-temperature properties of metals and methods of testing, has added materially to knowledge of methods for testing tool steels and machinability, and has done constructive work on wear testing and on gages. French and Klopsch's work on the mechanism of the quenching of steel has been practically applied by Smith to improve the product of the bolt industry.

Freeman has shown the alleged allotropy of zinc to be non-existent and has added to our knowledge of the properties of babbitt metal and of the endurance of rail steel.

Cain has worked on the Ledebur method for oxygen in steel and Jordan has brought close to perfection the vacuum fusion method for determining oxygen, hydrogen and nitrogen in steel and cast iron.

The work of Neville and Cain on the pure iron-carbon-manganese alloys has served as a baseline for the study of the influence of other elements in steel. The successful working by Jordan and Swanger of pure rhodium into wire



Figure 4—Brinell Wear Testing Machine

*Possible application of this machine to shovel materials is now being studied. Sand from reservoir R is fed through hopper H and dragged past specimen S under pressure from weight F by wheel W*

has made possible decided improvements in apparatus used by other divisions of the Bureau of Standards.

Saeger has developed methods of testing molding sand for permeability, compression and sintering point. His recent work on rubber as a core bond also deserves mention in any such list. His studies on metal spray led the metallurgical division to try to protect duralumin against corrosion and intercrystalline embrittlement by a coating of pure aluminum, a scheme recently commercialized. In the same connection, Rawdon proved the importance of cold water quenching of duralumin itself as a means of minimizing intercrystalline attack.

In looking back at this research work it is noteworthy that important advances in theory have resulted from work undertaken for purely practical purposes, and vice versa. It is the writer's belief that the distinction between "practical" and "fundamental" (i.e., theoretical) research is an artificial one and that search for experimental facts and the reasons for them is no less "fundamental" because it

happens to have angles of immediate practical importance. Nor should a question apparently of pure theory be avoided because it does not show immediate practical angles.

#### Present and Future Work

Most of the present work is concentrated upon fields in which the bureau has previously been working and whose importance seems demonstrated.

In all of it as much stress is being laid on the development and appraisal of suitable test methods as on the obtaining of data by those methods. Once superior methods are available, which really tell what one wants to know, producers and users will apply them to the materials they make or use, and the needed data will rapidly be collected. But in many of these fields industry is not getting these data for lack of suitable tests. It seems of more importance to the metallurgical public that the bureau concentrate on test methods rather than on getting masses of test data.

## Hot Blast Invented One Hundred Years Ago

ON Sept. 11 there will be celebrated in Glasgow, Scotland, the centenary of one of the most remarkable inventions. On this day, 1828, there was granted to J. B. Neilson, a city gas works manager, patent No. 5701 for "improved application of air to produce heat in fires, forges, and furnaces where bellows or other blowing apparatus are required."

Extracts from the original specification show that Neilson had in mind the principles of good combustion and fuel economy rather than their application to any particular case.

"A blast or current of air must be produced by bellows or other blowing apparatus in the ordinary way. . . . The blast or current of air so produced is to be passed from the blowing apparatus into an air vessel or receptacle, made sufficiently strong to endure the blast, and through and from that vessel, by means of a pipe, tube or aperture, into the fire, forge or furnace. . . . At the commencement and during the continuance of the blast it (the vessel) must be kept heated artificially to a considerable temperature. It is better that the temperature be kept to a red heat or nearly so, but so high a temperature is not absolutely necessary to produce a beneficial effect. The air vessel or receptacle may be conveniently made of iron, but the effect does not depend on the nature of the material. . . . The form or shape of the vessel or receptacle is immaterial to the effect, and may be adapted to the local conditions or circumstances. The air vessel may generally be conveniently heated by a fire distinct from the fire to be affected by the blast or current of air, and generally it will be better that the air vessel and the fire by which it is heated should be inclosed in brickwork or masonry, through which the pipes or tubes connected with the air vessel should pass. The manner of applying the blast to the air vessel is, however, immaterial to the effect if it be kept at a proper temperature."

The far reaching effects of this invention on the iron industry and prosperity of the world in general have frequently been described. It marked the first step in fuel economy and consequent high output of blast furnaces; these in turn have given the world cheap iron and steel.

#### Stimulated Scotch Iron Making

The immediate effects of hot blast as applied to the early nineteenth century blast furnaces were truly astounding.

In 1829 a stove was built at the Clyde Ironworks, giving a preheat of only 300 deg. Fahr., but this resulted in the coal consumption (as coke) being reduced from 8.05 to 5.15 tons per ton of pig, together with a greatly increased output. By 1833 the blast temperature had been raised to 600 deg. Fahr. and the coal consumption (now fed into the furnaces raw to avoid heavy coking losses) had come down to 2.25 tons per ton of pig. It was not until some years later that Faber du Faur's idea (patented in 1832) of using the waste gases from the furnace to heat the blast came into general use, so the above figures include the raw coal burned under the stoves. In practice it was found that 250 lb. of coal burned under the stoves saved a ton of coal in the charge.

The resulting growth of the iron trade in Scotland following the general adoption of Neilson's patent is another indication of its importance. In 1830 the total output of all furnaces was only 37,500 gross tons, but by 1840 this had increased to over 200,000 tons.

#### A Product of "Industrial Research"

The invention was not a "shot in the dark," but the outcome of scientific observation and reasoning. J. B. Neilson, the son of an engine wright, was a self-educated man. After serving his apprenticeship with the firm that employed his father, he took work at the City Gas Works, Glasgow. Studying in his spare time as best he could, he rose to foreman and finally to manager. In this position he was able to establish one of the earliest industrial laboratories for works control and training his men. It was while experimenting here that he realized the importance of preheated air in combustion, though it is improbable that he realized at the time how far reaching his discovery would be. That its most important application came in another industry illustrates again the value of a sound scientific education with its wide and fruitful results.

"The Employment Interview" is the title of the second of a series of manuals of employment practice, which is being issued by the Policyholders' Service Bureau of the Metropolitan Life Insurance Co., New York. Methods of various companies in conducting hiring interviews are outlined in the booklet, and of particular interest is the policy of the Curtis Publishing Co., Philadelphia, in emphasizing the undesirability of over-stressing the good features of the job.



# Carbonizing Dodge Parts Electrically

Parts Quenched from Pot Given 10½ to 16½ Hours' Heat  
in Turret Furnace—Pot-Cooled Parts Stay Twice as  
Long in Straight-Line Counterflow Furnace

**I**N a previous article, published in THE IRON AGE Aug. 16, page 389, it was noted that nearly all heat treating operations in the Detroit plant manufacturing Dodge motor cars have been electrified. Not only are forging and finished parts heated electrically, but carburizing is done in special types of furnaces, heated with electrical resistors. The latter equipment will now be described.

It should be understood that this modern installation does all the case hardening required, with the exception of those parts which are heated in cyanide, either for superficial case or merely for a heating out of contact with air. For such purposes 40 oil-fired cyanide pots of conventional type are retained. Parts which are quenched from the box are carburized in furnaces with rotary hearths. Work that is box-cooled is done in counterflow or recuperative furnaces, thus saving considerable heat energy.

## Rotary Electric Furnaces

All parts that are to be quenched from the box at carburizing temperature are treated in three rotary-type furnaces built by the George J. Hagan Co. These are 26 ft. 3½ in. in outside diameter, 13 ft. 2 in. high above floor level and extend 5 ft. 8 in. below floor level.

The outside diameter of the rotating table is 22 ft. 8 in. and its inside diameter 12 ft.; its total loaded weight is between 60 and 70 tons. This hearth is supported by 91 1½-in. balls riding in a hardened gear race and supplemented by eight dead eyes and rollers riding on a circular track. The table is connected with a shaft projecting through the center of the furnace, on which is mounted a 6-ft. driving gear. A 1-hp. 220-volt motor, operating through a Foote Brothers speed transformer, gives a predetermined table speed of 10½, 13½ and 16½ hr. per revolution respectively in the three furnaces.

The table is equipped with 27 alloy bucks or piers equally spaced, 26 of which are active, the twenty-seventh being either unloading or loading. (These bucks support the

work 7 in. above the hearth, allowing the heat to strike the under side of the boxes. This elevated position also facilitates loading and unloading). Thus the time cycle is divided among 26 parts in the heated zone and one part for discharging and charging one pier of carburizing boxes.

After removing the hot boxes of carburized charge, the furnace operator presses the motor control button and moves the table forward until the empty buck automatically stops and indexes in front of the charging door. A baffle wall between the discharge and charging doors insulates the ingoing from the outgoing boxes.

A lift-platform electric truck is used for loading. It brings five carburizing boxes from the loading platform. The truck moves into position in front of the charging door, its arms carrying the boxes are raised to the proper level, a compressed air cylinder opens the door and the truck moves forward, the arms straddling the pier. The arms are then lowered, depositing the boxes on the pier, and the truck backs away.

An interesting detail is the construction of the three-piece carburizing boxes, 11½ x 16 x 8¾ in. in dimensions. They have cast corners and

rolled alloy sides that are cast into the corners. The Dodge company finds that with this type less breakage occurs than with the more conventional cast boxes. Boxes are made of Q-alloy or a nichrome heat-resisting alloy.

## Direct Labor Reduced One-Half

Each rotary furnace requires 500 kw. in five 100-kw., 220-volt, three-phase circuits arranged for three-point control. Settings on three Leeds & Northrup recorders control these circuits through their respective thermocouples; limit stops on these recorders actuate relays that control the power input switches. The first thermocouple, approximately 10 ft. from the loading door, controls two circuits and is set for 1725 deg. Fahr. The second, controlling two circuits, is at approximately one-half the travel and is set at



Fig. 1—Double-Ended Counterflow Carburizing Furnace. Two pot loads of ring gears on a single tray about to be charged into furnace

1700 deg. Fahr. The third is close to the discharge door and is set for 1650 deg. Experience in the Dodge plant has shown that the higher temperatures on the charging side reduce the heating portion of the cycle without danger of overheating the work. A saving of approximately 1½ hr. has been made in the cycle by this arrangement. Heating elements suspended from both side walls are 80:20 nickel-chromium ribbon operating at a density of approximately 8 watts per sq. in., giving a maximum temperature on the ribbon of approximately 100 deg. Fahr. higher than the furnace atmosphere as registered by the thermocouple.

These three furnaces produce the work that formerly required 26 oil-fired 10 x 11-ft. furnaces. While the heat cost is somewhat higher, it is stated that the direct labor cost of the furnace operation has been reduced one-half and that the quality of work produced approaches the ideal condition, i. e., uniform penetration of carbon and no rejects.

Hot carburizing boxes are carried from the furnace by the electric truck to motor-operated dumping machines located back of the furnaces. The box is clamped to the machine and inverted, dumping the contents on a screen, through which the carbonizing compound falls. The work slides down the screen into an oil bath.

#### Counterflow Carburizing Furnaces

Camshaft, ring gears, pinions and some miscellaneous parts are box-cooled. Such parts are carburized in seven counterflow-type furnaces of 159-kw. capacity, built by the Electric Furnace Co. These furnaces are 71 ft. long and have a hearth 72 in. wide, with no dividing wall. Fig. 1 shows the end door. The furnace is "double-ended," that is, it is loaded and discharged from both ends.

Furnace 11, for instance, is loaded from the near end (Fig. 1) and unloaded from the far end. Furnace 12 (not separated from No. 11 in any way) contains a row of pots moving in the opposite direction. The rows of boxes are pushed forward at a predetermined rate from opposite di-

rections, so that the discharge end of one row is alongside the charging end of the other. With this arrangement the cold boxes absorb heat as they enter from the hot boxes passing by on the other rollers.

Of the 71-ft. furnace length the preheating zone at either end is 16 ft. long. Next comes 6½ ft. of heating zone, and in the center is the holding zone, 26 ft. in length. The power for the holding zone is 49 kw. and for each heating zone 55 kw. These three zones are separately controlled, and are powered top and bottom with T-grid elements. Current is transformed from a 220-volt, three-phase circuit, a single-phase to each zone, to obtain the required current density on the heating element. Fig. 2 shows the automatic control operating from Leeds & Northrup recorders.

Packing and discharging is done on roller tables at the side of the furnaces shown in Fig. 3. As shown at the left, the boxes are packed with work and carbonizing compound and a tight-fitting cover is placed. Then the box is moved forward into a roll-over device and emerges on the far side upside down—the lid now forms the base on which have been cast the lugs necessary to keep the track through the furnace. A narrow-gage truck carrying a roller table then transports one loaded box to the furnace end, as shown in Fig. 1. When the truck is in the proper position at the charging point, it is locked in place, the door is opened and the pot is shoved into the furnace. A cooling box may also be withdrawn from the other row at the same time.

Six rows of Q-alloy rollers are placed in each furnace, as shown in Fig. 1. Each pot-base is attached to the pot just ahead by an inverted U link, and the string is moved through the furnace by a hydraulic pusher mechanism manufactured by the Oilgear Co. Time is regulated by the setting on a Stromberg clock.

Boxes which have passed through the furnace are trucked to the racks shown in the left foreground of Fig. 3. After further cooling, the pots are lifted and contents

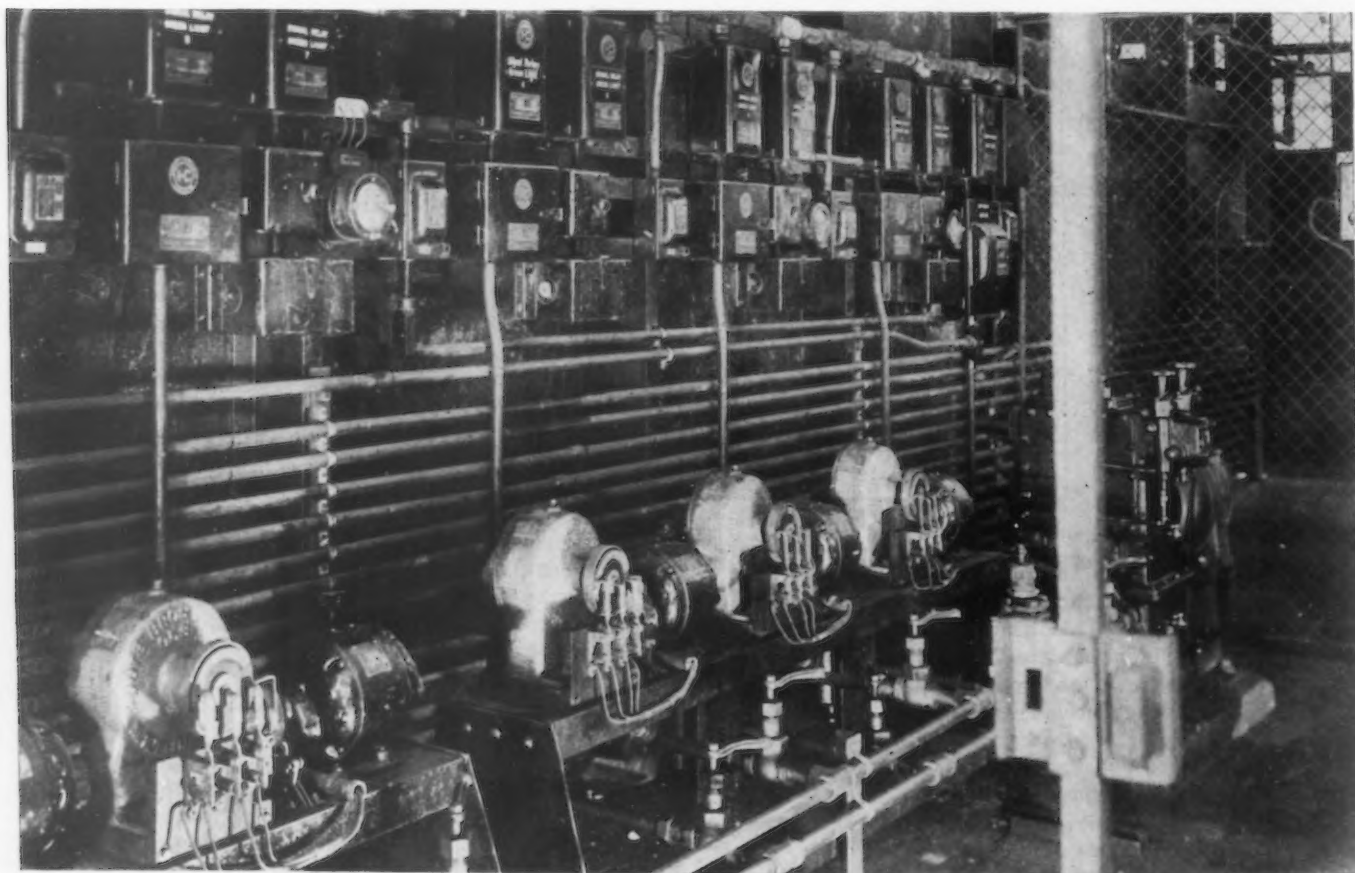


Fig. 2—Control for Battery of Counterflow Carburizing Furnace. Oil gear pushers regulated by motor driven contactors in foreground. Power input regulated by switches above, controlled by recording pyrometers



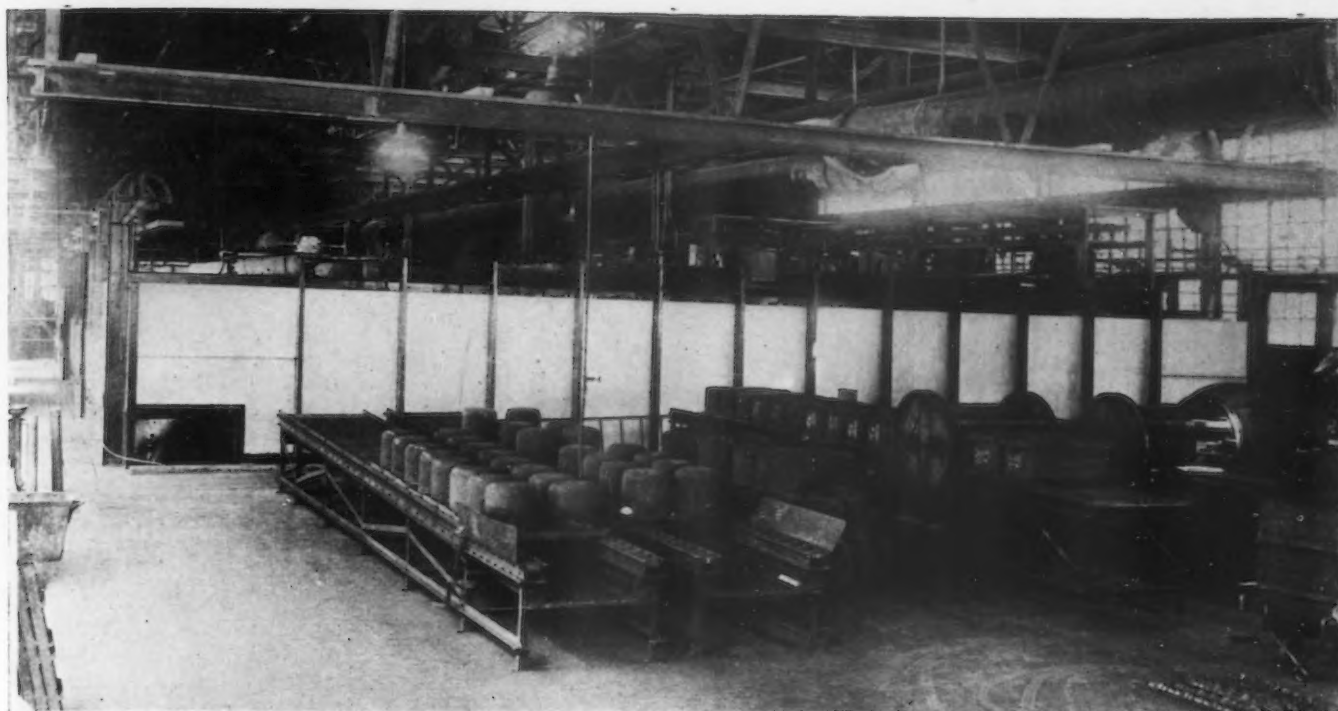


Fig. 3—Loading and Unloading Equipment for Pot Carburizing. Straight-line counterflow furnaces in the rear

dumped on the screen, which catches the metal parts and passes the compound into pans placed beneath.

Long narrow boxes have a capacity of 20 camshafts. Ring gears are packed in round pots, which ride through the furnace in pairs.

Incoming boxes are heated in the preheating zone to a temperature of 750 to 800 deg. Fahr. in the center of the box. The pyrometer settings are for 1650 to 1660 deg. in the heating zones and 1670 to 1680 deg. in the holding zones. A case 0.060 in. deep is obtained in a total time of 32½ hr. Economy in operation is shown by the low power consumption: the output is 16½ lb. per kw. hr. gross on the above cycle.

Definite heat-treating schedules follow:

The rear axle drive pinion, of chrome-vanadium steel, is first annealed at 1700 deg. in a continuous electric furnace,

remaining in the furnace 3 hr., of which one hour is at full temperature. It is then cooled in boxes and machined. Threads are copper-plated to prevent carbon penetration during carburizing. The rest of the pinion is carburized to an average depth of 0.035 in. It is then heated in cyanide for 10 min. at 1320 deg., transferred to a lead pot for 6 min. at 1450 deg., and then quenched. The final operation is drawing 40 min. in oil at 300 deg. The pinion after these successive operations is tested on its teeth for file hardness.

Camshafts, made of series 1020 S.A.E. steel, are rough-machined after forging. Then they are copper-plated all over, the copper is ground off the cams and bearings, and they are carburized to a depth of 0.060 in. After this they are hardened out of a cyanide pot, quenched in a solution and drawn. They are held to a scleroscope hardness of 80 to 90.

## Japanese Scientists Study Crystal Lattice of Martensite

IF the density of quenched steel be measured it will be found to decrease as the carbon goes up, from about 7.860 for quenched Armco iron to 7.757 for quenched 1-per cent carbon steel. The reason for this expansion may be (a) high internal tensile stresses, (b) the presence of sub-microscopic cavities or (c) the expansion of the space lattice.

Sinkiti Sekito has tested the last assumption by means of X-ray analysis, and the results are published in Science Reports of Imperial Tohoku University for June, 1928. He used carefully prepared rods of quenched Swedish steels, varying from 0.1 to 1.0 per cent carbon. Measuring the distance between spectral lines (a function of the space lattice) and interpreting his results he finds that the space lattice of a quenched 1-per cent carbon steel is 0.45 per cent greater than of quenched carbon free iron. Since this agrees with the 0.44 per cent calculated from specific gravity experiments, he concludes that the expansion on quenching is due to a general increase in size of space lattice.

Diffusion of the spectral lines is also more marked in quenched high carbon steels. Breadths of these markings were measured by refined methods and appear to be a func-

tion of the carbon content. Prof. Honda believes this phenomenon indicates distortion of the lattice by balanced internal stresses, some positive, some negative, caused by carbon atoms present in the interspaces between iron atoms. On this assumption, the observed widening of the spectral bands would require an internal stress of 275,000 lb. per sq. in., which is nearly the ultimate tensile strength of quenched high carbon steel.

On the other hand, the Swedish investigator Westgren believes that the broadening of the spectral bands indicates a great refinement in the size of the ultimate crystal grain. Mathematical analysis of the experimental results indicates that an average grain size of 150 Angstrom units would produce the observed effects, a size which is far below the limit of microscopic resolution. The Japanese investigators reject the supposition that the well defined crystals of martensite observed under the microscope are further composed of a large number of elementary crystals, oriented at random, as called for by Westgren's hypothesis, and by Jeffries and Archers' slip interference theory of hardening.



## Making Nuts and

BY F. W. MANKER\*

**S**ELF-CONTAINED from raw material to finished product, rolling its own steel bars and drawing its own steel wire, the Buffalo Bolt Co., North Tonawanda, N. Y., is one of the country's largest manufacturers of nuts and bolts. These are hot forged or cold headed and then carefully heat treated.

Rolling is done in a mill which includes two stands of 16-in. and six stands of 12-in. in a continuous train and five stands of 10-in. and two stands of 8-in. Belgian trains. These roll down to  $\frac{1}{4}$  in. As the hot rods pass from the finishing stand, they are coiled in machines which automatically discharge the coils on to a 125-ft. muffle conveyor for slow cooling. The coils are picked off from the other end and placed on industrial cars for delivery to different departments.

There is also a 240-ft. cooling bed for straight bars and a rotary shear for cutting these bars to length.

A continuous billet heating furnace fired with gas fuel brings the steel to rolling temperature. This furnace is 34 ft. long and 17 ft. wide and is equipped with a 20-ft. charging table and electric pusher. Nine gas burners, located in the discharge end, fire above the hearth. A temperature of 2500 deg. Fahr. is obtained. The waste heat flows back to the charging end, where it passes out through an opening in the roof of furnace, over which is mounted the air preheater. Fresh air, taken in through this heater, is premixed with the gas and this gas-air mixture is fired through the burners.

Steel billets, which range from  $2\frac{1}{2} \times 2\frac{1}{2}$  in. to  $4 \times 4$  in., 15 ft. long, lying at right angle to the long axis of the furnace, are pushed through from one end to the other on skids. The side-door discharge principle is employed; another

pusher forces the hot billets out endwise through a small opening at the discharge end, at right angle to their line of travel through the furnace on to a conveyor which takes them directly into the roll train.

Other departments in this plant include the following: wire mill, cold heading and cold nut department, hot forge and hot punch department, pointing and trimming department, bolt threading and nut tapping, tumbling and nut storage, machine shop and tool department, and hot galvanizing and electroplating sections. In addition there is the jobbing department for special work.

### Nut Department Laid Out for High Production

In the cold heading and cold nut department are long lines of cold heading machines for upsetting the bolt ends and batteries of punch presses for cold punching nuts. Raw material for the bolts and small sizes of nuts comes in coils, while that for the large work is in bars. This material, delivered on industrial cars, is unloaded and distributed to the individual machines by overhead cranes. Finished work is discharged automatically into buckets and is removed by the same cranes and industrial cars.

In this department there are made, every working day, 2,000,000 nuts and 1,000,000 bolts. Some of these nut machines produce as high as 10,000 nuts an hour.

In layout this nut department is typical of the labor-saving methods utilized elsewhere in the plant. The machines are placed in two long parallel rows with an aisle between. A crane spanning this aisle distributes the raw material from the industrial cars to the machines. One man suffices for this work. The finished product is discharged on the other sides of the machines into buckets, which are handled by monorails operating in the outer aisles.

Long lines of mechanical headers for bolts and punch presses for nuts are in the hot forge department, all served with furnaces in which the material is heated. This department is capable of turning out 1,000,000 bolts and 500,000 nuts daily. Most of the furnaces are of the box slot type,

\*Vice-president Surface Combustion Co., New York.

At Top of Page Is Shown a Battery of Continuous Automatic, High-Speed Hot Bolt-Heading Machines with Their Heating Furnaces. Wire is fed from coils through the furnaces and thence, properly heated, into the machines.

Section of Forging Department, with Row of Forging Machines, Each Served by Its Own Heating Furnace (top of right-hand page).





## Bolts from Billets

and many of them are fired with gas. They are about 6 ft. wide, 5 ft. high and 3 ft. deep. Another type of furnace with about the same cross section, but 28 ft. long, heats 25-ft. bars over their entire length. These bars are then removed and put through automatic and continuous bolt-heading machines.

### Combination Furnace and Hot-Heading Machines

Many of the machines in this plant were designed and made by the company engineers and mechanics. There are seven high-speed hot bolt-heading machines fed by wire in coils, the first end of one coil being welded on to the rear end of the preceding coil, so that the machines run without interruption. The principal feature is the forging furnace which is coupled to each. The wire from the coils passes first through the furnace, where it acquires the correct forging temperature, and then directly into the machine, which heads, shears and ejects the bolts automatically.

This is one of the few instances in industry where the two operations of heating and forging have been synchronized into straight-line mechanical production. This necessitated automatizing the heating operation and the designing of a furnace with sufficient capacity to deliver wire at forging heat at a very high speed. How successfully this was accomplished is reflected in the fact that each unit will turn out 85,000 bolts a day. They are served with overhead cranes in front, to bring in the raw material, and a monorail in the rear to remove the finished work.

For pointing and trimming a department is equipped with several types of machines. Here is a battery of automatic pointing machines for carriage bolts and gimlet pointing machines for coach screws. The first are hopper fed and continuous in operation. Automatic flash trimmers shear the flash from the heads of the forged bolts, while others trim cold upset heads, either square or hexagonal. Some of these were designed and built at the plant. One type is provided with a hopper which feeds the bolts into it; rotary cutters trim two sides, the bolt is given a quarter

Automatic Machines, Associated  
With Gas-Fired Furnaces, Give  
Large Output—Heat Treating  
Important

turn and the same cutters trim the other sides. This unit has a capacity for 90,000 bolts daily.

Another group consists of three machines to a unit which point, thread and screw on the nut in three continuous operations. These are equipped with a device which automatically picks out and rejects any bolts which may pass through without being nutted. There is also a battery of full automatic nutters here, which were designed and made by the company.

### One Boy Feeds Ten Tapping Machines

Most of the bolt threading and nut tapping is accomplished in another section, where are located batteries of vertical machines designed and built by the company for this purpose. One line of 42 semi-automatic tappers requires the services of only one boy to feed every ten machines. There is also a bank of machines for cold rolling threads on to small bolts. Close by is a group of full automatic tapping and threading machines, while for facing the top and bottom of bolt heads a line of semi-automatics is provided.

Drill presses are used for drilling cotter pin holes and automatic bolt slotting machines for slotting the heads of screws. The finished products all go through a huge rotary washing machine. From this they are discharged on to a long belt conveyor which runs between two lines of girls who inspect the work for imperfect specimens. Ten rotary tumblers located in an overhead gallery are used for pol-

ishing. These are fed by cranes and discharged by gravity into storage bins. In some of these the material is heated, to impart a better polish to the product.

Finished work is all heat treated so that it shall have the greatest possible strength, toughness and resistance to wear. A recent innovation in the heat-treatment room was the installation of a distinctly new type of heat-treating machine or furnace designed expressly for small work on a large scale. Known as the Victor-Peninsular furnace, this unit was built by the Surface Combustion Co., Toledo, Ohio. It is a combination of furnace and traveling conveyor.\*

The furnace, of brick, is equipped with an automatic temperature control. The conveyor has motor drive through variable-speed gearing, so that the entire unit is continuous and automatic in operation. It is about 18 ft. long, 4 ft. wide and 3 ft. high, the heating chamber occupying about 12 ft. The conveyor belt is suspended between two steel pulleys, located at either end of the furnace, and rests directly on the hearth. It is made of stainless steel and is about 12 in. in width.

At the charging end a 6-ft. roller table is provided which acts as an aid in loading, while at the other end the product drops by gravity directly into the quench. The burner equipment consists of a number of tunnel burners firing below the hearth. These are manifolded to low-pressure inspirators which automatically proportion the gas and air for perfect combustion and the furnace atmosphere desired.

Motor-driven valves actuated by automatic heat control units are provided, the first to control the temperature in the preheating and heating zones and the second to regulate that in the soaking zone. The rest of the equipment consists of two thermocouples and two recording controllers. In this manner the correct heat gradient is maintained automatically and without attention of a workman. This furnace is so fired and the gradient so regulated that the work is heated gradually to the maximum temperature, with a

\*Furnaces of this type were illustrated and described by THE IRON AGE, in the issue of Oct. 27, 1927, page 1158.

minimum temperature differential between the furnace and the work.

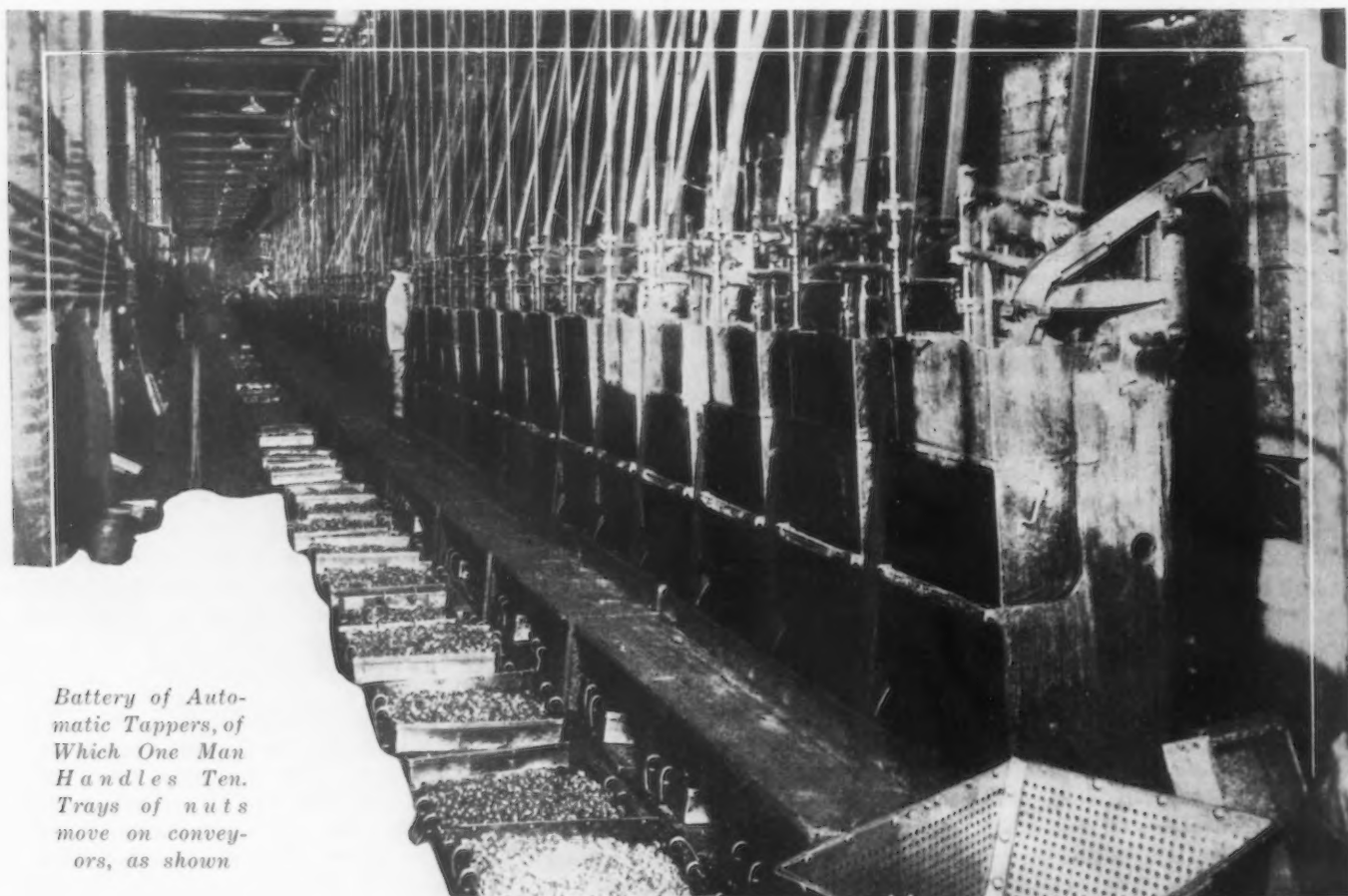
#### Reducing Atmosphere Avoids Scale Formation

When the inspirators are set so as to provide a reducing atmosphere in the furnace, the work is discharged in a practically scaleless condition. At the unloading end is a quench tank 6 ft. long, 3 ft. wide and 2 ft. deep, into which the work is discharged through a chute or water seal, which prevents contact with the room atmosphere and thus avoids scale. The tank is equipped with a woven wire conveyor, of the rotary elevator type. This carries the work slowly through the quenching fluid and finally removes it from the tank and discharges it into containers. This conveyor is driven by the same motor that drives the furnace conveyor.

Another type of furnace in this plant is used for forging the ends of the oil-well sucker rods. This unit is about 6 ft. long, 3 ft. wide and 4 ft. high and of the slot type. Constructed of brick, it is heated with gas fired through Surface Combustion Co. tunnel burners. There are six of these, grouped in a battery and located in the roof of the furnace, so as to fire down on the work.

Gas is supplied through two manifolds and one inspirator for proportioning the gas-air mixture. This system of firing has resulted in marked fuel saving as compared with the previous method used for this work. An upsetter is placed alongside the furnace and the ends of the rods, which are 25 ft. long, are shaped in it. A unique, hand-operated conveyor consisting of three endless chains is utilized for advancing the rods, and the ends projecting into the furnace, as the work progresses.

There is a completely equipped machine shop for making practically all the machines used here and an engineering and research department where they are designed and improved. A tool room is supplied for making tools, dies, jigs, etc. Laboratories, both chemical and physical, are used to analyze and test all material coming into the plant and finished work going out. All lots of raw material are immediately analyzed on receipt and are tagged with this analy-



Battery of Automatic Tappers, of Which One Man Handles Ten. Trays of nuts move on conveyors, as shown





*Long Line of Automatic Threaders, With Boxes of Bolts Ready to Be Threaded*

sis. The same tag is put on the material after it is rolled and follows it through the plant. In this manner any de-

fective products can be traced back to the original shipment of raw material.

## Using Business Statistics to Improve Business

IN the recently issued publication, "How to Use Current Business Statistics," prepared by Mortimer B. Lane, editor *Survey of Current Business*, published by the Department of Commerce, it is shown how business men can make the best use of current statistics. As pointed out in the foreword by William M. Steuart, director Bureau of Census, the use of current statistics is so widespread and varied that a description of the methods must draw its materials from many sources, and this has been done by Mr. Lane. He deals with a number of specific industries, among them those making metals and machinery. He precedes discussion of use of statistics by the various industries with a rather detailed description of the problems involved and their solution, the different phases of statistics and the results obtained from their use.

In his comment on metals and machinery, Mr. Lane points out that a great range of statistical data is used by steel manufacturers in planning their business policies. One company, it is stated, watches particularly the statistics of agriculture, building construction, automobiles, railroads and exports, to see how the consumption of steel may be affected; while prices, wages and living costs are watched as bearing on wage questions. A manufacturer of sheet steel products compares his new orders with those of allied industries, to find out and improve his weak points. A fabricator of structural steel watches the figures on building construction and the trends of the various industries, to ascertain their prospects for expansion, which would mean larger sales of structural steel.

A manufacturer of steel barrels, Mr. Lane says, uses the monthly steel barrel statistics as publicity material in his monthly price bulletin to companies using steel containers for shipment or storage. This manufacturer also determines regularly the proportion of the total business that he is getting, as well as the proportion in each territory, so that weak spots in the sales organization can be picked out. Another firm in this line has compared its productive capacity with that for the industry as a whole by months

for three or four years, and it has found that its business is becoming more stabilized each year.

Statistics of the iron and steel industry, it is stated, are used extensively by another firm in planning its sales programs and in checking up on the results. A company manufacturing tools and hardware finds that the curve of its sales is preceded by construction figures three months ahead, by speculation nine to 12 months ahead and by money rates, inverted, 12 to 15 months ahead. Study of the proportion of the individual business to the machine tool industry as a whole led two managers in this field to determine the cause for the reduction in their proportionate share of the total business, although gaining in actual value. This study led in one case to a reconstruction of the selling department, this being the weak point in the organization.

Other manufacturers in this same line found from figures of stocks, shipments, etc., that they had locked up a larger amount of capital for each unit sold than had their competitors as a group. This led to revamping their production system, installing better methods of process and inventory control, and the liquidation of stocks, resulting in the accumulation of interest-bearing investments. The sales manager of a machine tool company uses the trade statistics to concentrate his efforts in the prosperous centers, and a distribution of the business statistics throughout the sales department has been found to produce new confidence in business.

Adoption of a commercial standard for 250-lb. iron or steel screwed unions will be the subject of a conference under the auspices of the Commercial Standards Unit, Department of Commerce, on Monday, Sept. 24, at the Commerce Building, Washington. Notification of the conference has been given to producers, distributors and consumers by I. J. Fairchild of the Commercial Standards Unit, and has been accompanied by copies of the proposed standard.

## Two Shifts and 88 Hours a Week

Morgan Plan at Worcester, Mass., Gives Each Worker Nearly Half a Day of Daylight Out of the Shop

FOR six years the Morgan Construction Co., Worcester, Mass., builder of rolling mill and wire mill equipment, has been operating its machine shops on a schedule of 88 hours per week, or 4500 hours a year. This unique arrangement is continued with satisfaction to the management and evidently to the 600 employees affected. Company officials state that the double shift has produced economies, particularly in a wider distribution of overhead.

One of the two shifts goes to work at 6:30 a.m. and ends its day at 2:30 p.m.; then it is replaced by the second shift which is on until 11:42 p.m. With 24 minutes out for each shift for a meal, and with the first shift working up to 12:30 noon on Saturday, each shift has a 44-hour week. The first has for five days a daily work schedule of seven hours, 36 minutes, followed by six hours on Saturday. The second shift works five days of eight hours, 48 minutes each. The shorter week does not materially af-

fect the employees' weekly wage, which compares favorably with the average paid in similar lines of manufacturing, locally and the country over, where the hours of the men are somewhat longer.

The Morgan management thus sums up the advantages which time has demonstrated for the plan: Overhead costs are kept much below what they would be were the machinery operated only 48 to 54 hours per week. Investment in equipment is kept down, and machines yield a maximum return during the years when they are still modern; that is to say, before machines of more efficient design are available to supersede them.

The employees have given every evidence that they like the plan. No work is required of them Saturday afternoon or Sunday. As it has worked out, the younger men generally prefer the second shift, with its longer hours but only five days a week, for it gives them a very long week end, from 11:42 Friday night

to 2:30 Monday afternoon. On the other hand, the older men as a rule prefer the first shift with its shorter day, but something to do every week day. Every man has approximately half a day of daylight outside of the shop. Every one has ample time to work a garden or otherwise occupy himself about his home or in recreation elsewhere. Sleeping in the hotter hours of a summer day is never necessary. All the men may travel to and from their work during off-peak hours of local traffic.

Another advantage to the company is a full overlapping hour of supervision. The foremen of the first shift stay on half an hour after their men have departed and the foremen of the second shift go on duty half an hour ahead of their men.

The company regards its two-shift system as a happy medium between the one-shift and the three-shift plans. Naturally where manufacturing processes are continuous the three-shift day is necessary. But studies made by the Morgan Construction Co. have demonstrated that in a machine shop the night shift, from midnight on, is the least productive, and that, all things considered, better results are obtained by eliminating it.

## Steel Piling Sections Redesigned

Jones & Laughlin's New Shapes Combine Strength, Stiffness and Hardness by Economical Disposition of Metal

THE Jones & Laughlin Steel Corporation, Pittsburgh, is placing on the market the first two of a series of improved sections, known as the "improved double lock steel sheet piling." The new types, invented by Charles S. Boardman of the Jones & Laughlin organization, take the place of piling sections formerly manufactured by the company.

A saving in weight of as much as 20 per cent is one of the claims made for the new Jones & Laughlin sections. The sections are integrally rolled from blooms of steel selected to give them a tensile strength of 70,000 to 80,000 lb. per sq. in. and a hardness sufficient to prevent upsetting while being driven. The figure shows section C-27. Section EC-23.75 has exactly the same cross-sectional shape except that the wings are bent to 35

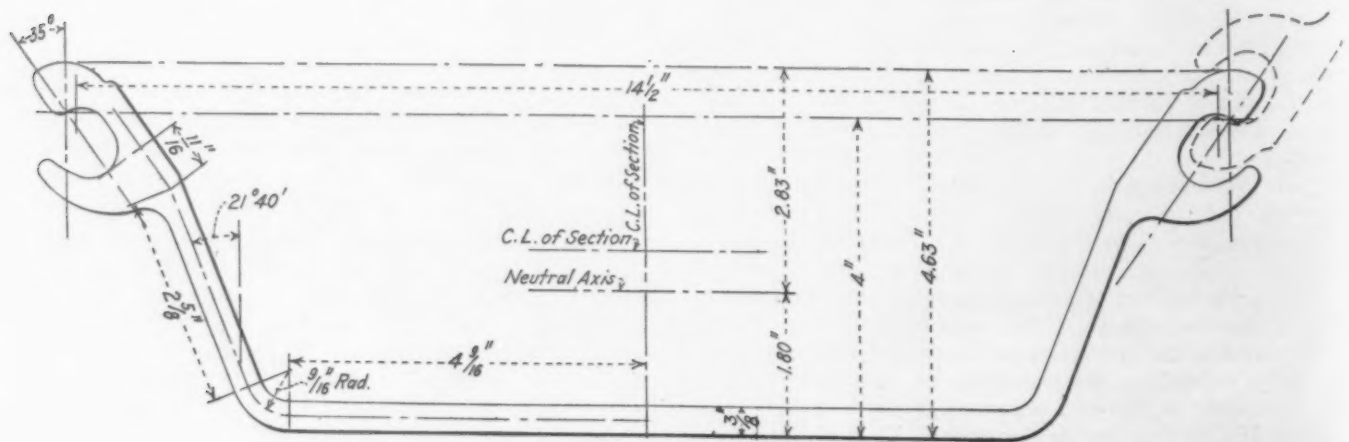
deg. from the perpendicular. Type SW-22 is a straight web or tension section.

The C sections form a deep channel and are primarily intended for dock or bulkhead work, and to be driven for permanent constructions. The EC sections are rolled as extended channel general utility sections for cofferdam, dock and shallow cofferdam work. Sections C and EC may be used in combination as intermediate

sections in order to economize on weight.

All sections have the same compact interlock, of three-line contact, of high tensional strength and watertight qualities, with ample clearance for free driving. Deflection in each interlock can be 20 to 30 deg. each side of center line. Interlocks are so designed that they tighten under stress or pressure. A special engineering department will furnish reports, suggestions and plans to assist in the correct and economical use of Jones & Laughlin steel sheet piling in the many forms of construction for which it is adapted.

A 600-hp. oil-electric locomotive will be used in switching service in Chicago by the Illinois Central Railroad. The locomotive is one of those developed by the Ingersoll-Rand and General Electric companies.



New J. & L. Sheet Piling. Weight 32.5 lb. per linear ft. of bar



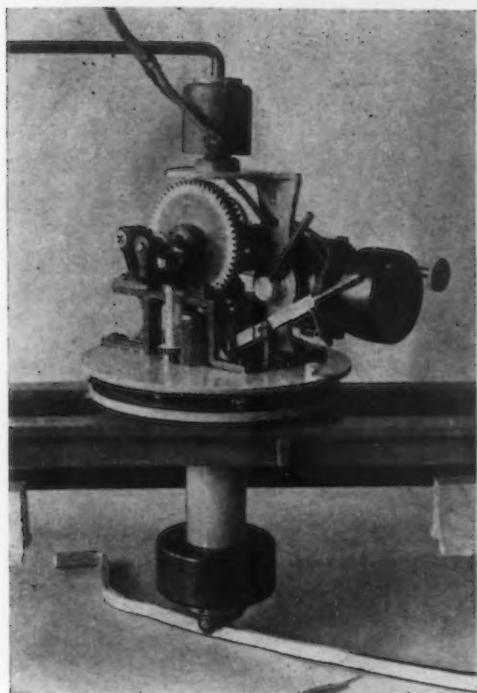


Fig. 1

## Precision Units for Welding Operations



Fig. 2

**A**UTOMATIC welding or cutting machines are by no means the rough devices which one might expect from the association with such high temperatures. Not only is the greatest ingenuity exhibited in the jigs and fixtures, but self-indexing and automatic control devices worthy of the best quality machine tools are installed on equipment for production work.

Thus, Fig. 1 is a close-up view of the main drive of an automatic shape cutter made by General Welding & Equipment Co., Boston. This drives a parallel motion device, directing the motion of an oxy-acetylene cutting blowpipe. A floating tube mounted on a ball-bearing turntable presses

two sharp cones a-straddle the bent aluminum template strip. The cones are motor driven through a differential, allowing one to slip around square corners.

Automatic drive and current control for a single spot welder (Model No. 275, Thomson Electric Welding Co., Lynn, Mass.) is constructed on entirely different lines. Fig. 2 shows a motor and train of gears which drives a main cam, which through connecting levers opens and closes the welding electrodes at adjustable pressure up to 600 lb. The contactors shown in the view control the welding current through remote-control switches on incoming power lines. One depression of the foot treadle results in one complete cycle and the production of one spot weld.

Even more intricate is the machinery installed by Ford to make steel automobile wheels. Fig. 3 shows the steel rim and ten short spokes placed in a fixture. Welds are made between the rim and the spokes, one at a time, the machine indexing and welding automatically, and stopping when the tenth weld is made.

Flash welding of steel sheets is utilized to join stampings, or even sheets before stamping. The Thomson welder, shown in Fig. 4, will take sheets up to 54 in. wide, and the clamps and dies are designed to weld a 13-in. strip of flat steel (which will later be formed into a windshield post) to the bent side of an automobile cowl. These clamps are shown in closed position from the rear side of the machine. A double cam is necessary on the push-up mechanism because of the extreme width of the platen.

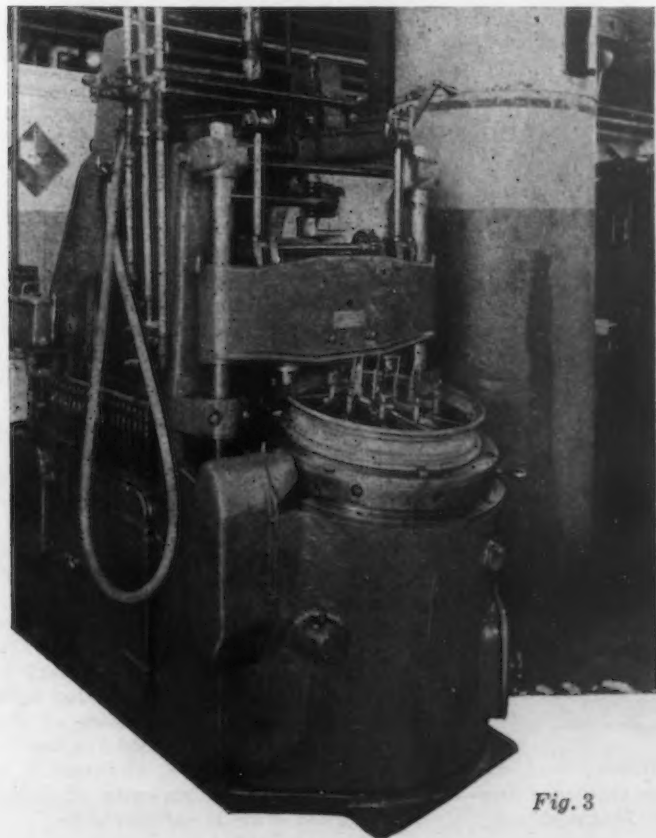


Fig. 3

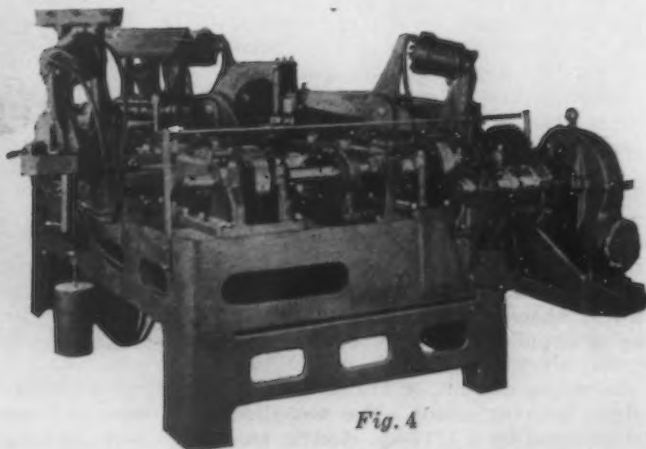


Fig. 4

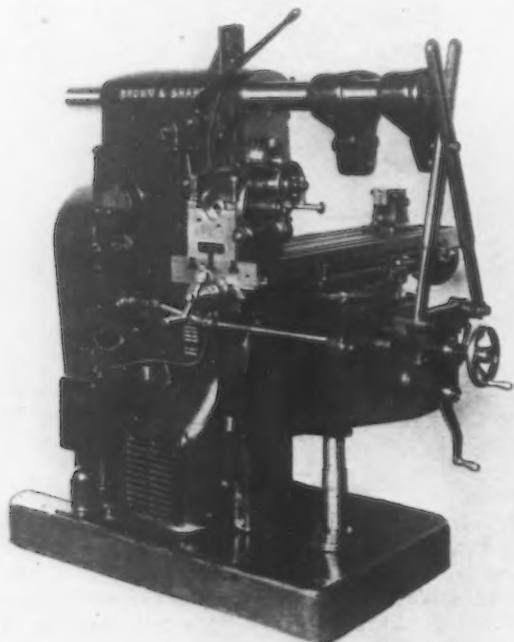
## Adds to Line of Standard Milling Machines

TWO new machines, designated as the No. 1A universal and No. 1B plain, have been added to the line of standard milling machines of the Brown & Sharpe Mfg. Co., Providence. They are similar in design to the company's Nos. 2A and 3A standard universal and the Nos. 2B and 3B plain milling machine described in THE

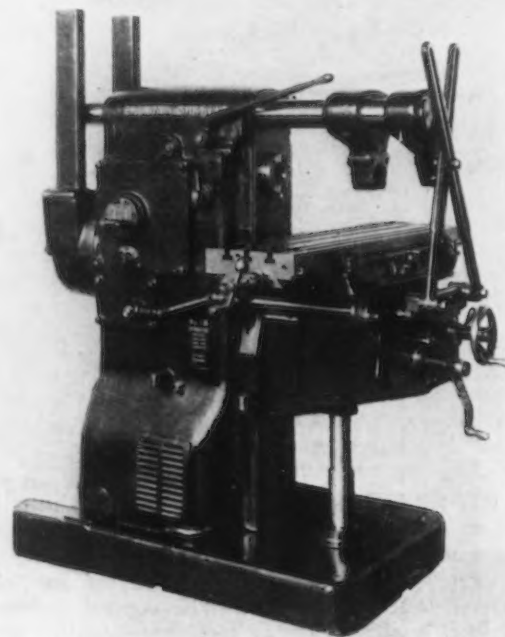
construction, and are provided with automatic longitudinal and transverse table feed. Vertical feed for the table is by hand. Similar to the "standard machines" previously brought out by the company, the Nos. 1A and 1B are of the sliding gear type. They are provided with a single lever, located at the front of the

spindle is mounted on three roller bearings.

Automatic lubrication throughout is another feature, a pump in the column delivering filtered oil to all mechanism within the column and to the driving pulley. Automatic lubrication is also provided for the knee assembly. The knee may be clamped either



*The Machines Are of Motor-in-the-Base Type, with Double Overarm and Automatic Longitudinal and Transverse Table Feed. The No. 1A universal, with motor drive, is at the left and the No. 1B plain milling machine, with belt drive, at the right*



IRON AGE of Jan. 19, but are of slightly smaller capacity. They are not equipped with the power fast travel feature, dual control for feed changes nor furnished with a pump, although the power fast travel and pump can be provided as an extra, if desired.

The machines are of the motor-in-the-base type, with double overarm

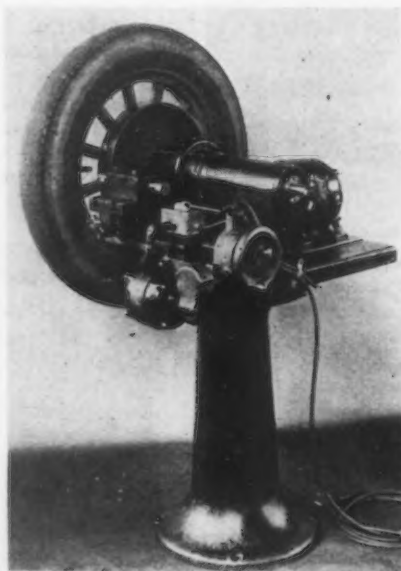
machine, for operating the feed changes. Speed changes in two series are also obtained by means of a single lever, which is on the side of the column. Direct reading dials indicate in both cases the feed or speed for which the machine is set. Feed and speed units are equipped throughout with heat-treated alloy steel gears. The

from the front or rear of the table by a single lever. It is provided with a one-piece knee screw which is completely guarded in all positions and does not extend below the floor. The driving clutch, located outside of the column, is of the dry multiple-disk type, operated by a single lever on the side of the machine.

## Brake Drum Turning and Honing Lathe

A MACHINE for turning and honing the brake drums of both passenger cars and trucks has been placed on the market by the Reed-Prentice Corporation, Worcester. The unit for passenger car brake drums is illustrated herewith; for truck brake drums an outboard support attachment with steel floor plate is furnished. Operation of the machine equipped for truck wheels is the same as that for the turning of passenger car drums, and in both cases the brake drums can be turned without removing the tire or rim.

Modern engine lathe standards are followed in the construction of the machine, which is provided with a pedestal base and is equipped with a tapered roller bearing spindle. The spindle drive is through worm and worm wheel, which run in oil, power being supplied by 1/2-hp. or 50 or 60 cycle, single phase, 110 or 220 volt alternating current, or 115 or 220 volt direct current motor. The tool-slide is actuated by a 1/12-hp. electric mo-



*For Turning and Honing the Brake Drums of Trucks an Outboard Support Attachment Is Employed*

tor through worm and worm wheel. Both motors are connected with a tumbler switch which automatically controls the feed of the tool-slide through an adjustable rod, the tumbler switch controlling both the drive and the feed motors. Passenger car and truck wheels are applied to the machine by a taper arbor which fits a corresponding taper hole in the spindle. The arbor, in turn, is threaded for a draw-bar. Arbors, bushings and other parts necessary for mounting the various passenger car and truck wheels are regularly supplied.

A honing tool, consisting of a bar which fits the tool block in the same manner as the cutting tool and is arranged to hold two honing stones, is available as an extra for use with the machines. The honing attachment is arranged so that it will function both on the outside and the inside of the brake drum. It is intended for use in getting a better finish, although it is stated that in the majority of cases the turned drum is satisfactory.

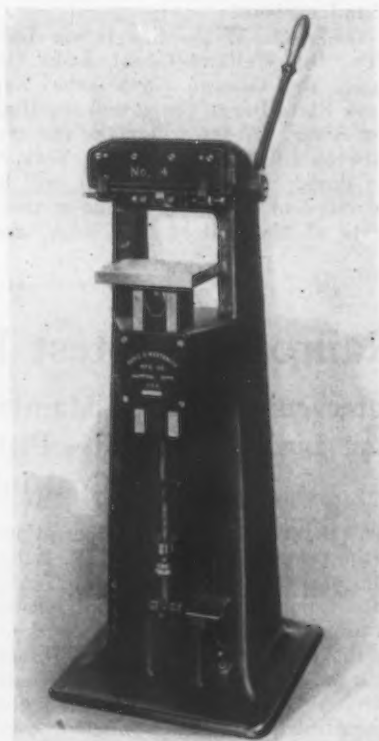


## General-Purpose Marking Machine of Improved Design

**I**NCREASED ease of operation and greater capacity are major features of a new general-purpose hand-operated marking machine, which is being introduced by the Noble & Westbrook Mfg. Co., East Hartford, Conn.

The new machine, designated as the No. 4, supersedes the No. 3 model previously manufactured by the company. It is designed to mark, by means of steel dies, trademarks, names, letters and numbers on flat or round metal parts of various shapes and sizes. The frame is heavier than that of the previous model and projecting parts that might interfere with the operator have been eliminated. The operator stands or sits in front of the machine, instead of at the sides as before, which arrangement enables the operator to put the work in the holding fixture more rapidly and also to observe more conveniently the movement of the marking die.

Parts to be marked are held in a suitable fixture which is fastened to the work table of the machine. Pressure on the foot-treadle raises the table and brings the work in contact with the marking die, this movement being accomplished through a compound lever arrangement. By pulling the handle down the die is moved across the piece to be marked. This handle may be set in the position most convenient for the operator. The



*The Machine Is Heavier and Easier to Operate Than the Former Model. Projecting parts have been eliminated*

slide is extra heavy and is fitted with roller bearings. It is regularly built

to give a mark  $4\frac{1}{2}$  in. long, but can be furnished for making marks up to 6 in. long. Adjustable stops are provided at the front of the machine to control the length of the stroke. Movement of the slide is through heat-treated steel gears. The table is set to the proper height by means of a handwheel on the elevating screw and graduations in increments of 0.001 in. permit close control of the table stroke so that accurate depth of impressions may be obtained. The maximum distance between the slide and the table is  $8\frac{1}{2}$  in., and  $6\frac{1}{2}$  in. under a round die.

A roll die-holder of new design can be supplied. It is inserted in the machine in a dovetail slot just above the table, and an adjusting screw is provided to facilitate changing the position of the die-holder from front to back, which eliminates the necessity of moving the entire work-holder. The die is returned to position for making the next mark by means of a spring of simple design. The die-holder can be taken out of the machine without lowering the table, which is a new feature. Replacable bronze bushings and a hardened spindle are other features of the die-holder. The starting point of the die is adjustable by means of a thumbscrew.

Floor space occupied by the machine is 20 x 20 in. The weight is 425 lb.

## Roller-Bearing Equipped Roll Lathes

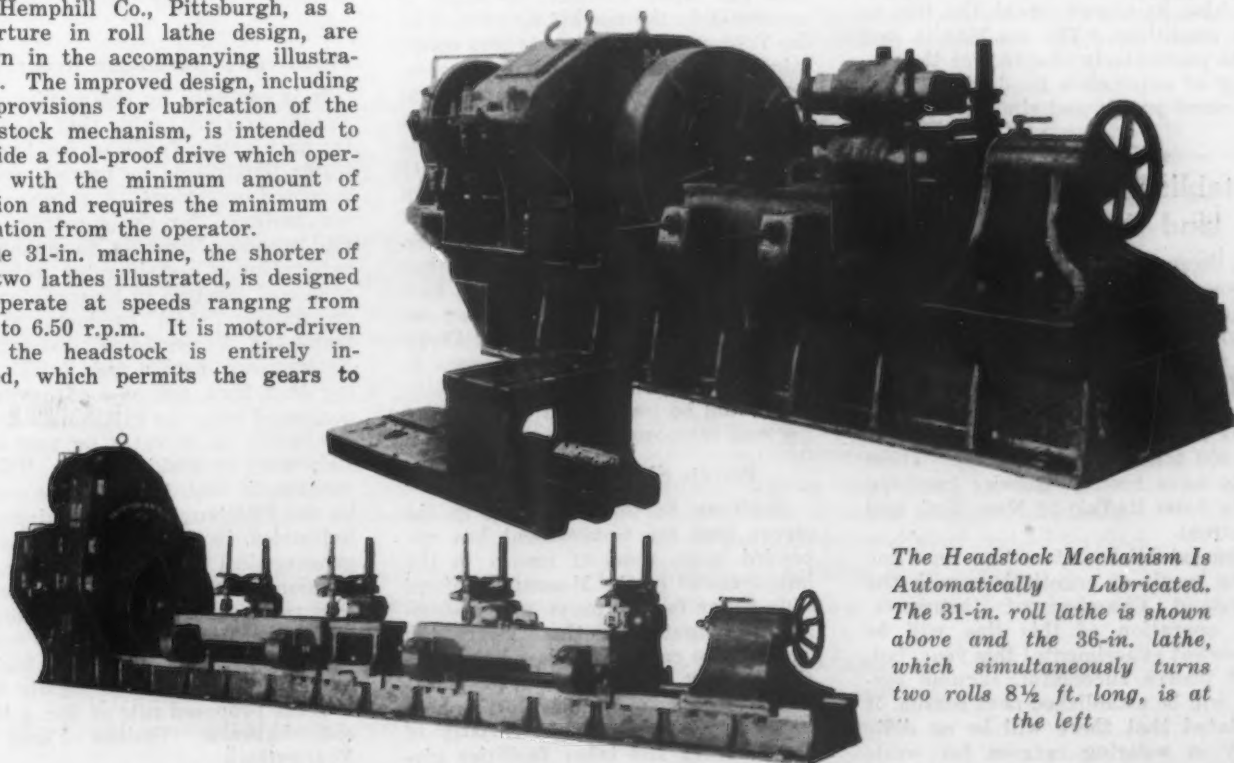
**T**WO direct motor-driven heavy-duty roll lathes with roller bearings on all gear shafts, which is emphasized by the builders, the Mackintosh-Hemphill Co., Pittsburgh, as a departure in roll lathe design, are shown in the accompanying illustrations. The improved design, including the provisions for lubrication of the headstock mechanism, is intended to provide a fool-proof drive which operates with the minimum amount of friction and requires the minimum of attention from the operator.

The 31-in. machine, the shorter of the two lathes illustrated, is designed to operate at speeds ranging from 0.73 to 6.50 r.p.m. It is motor-driven and the headstock is entirely inclosed, which permits the gears to

dip in a bath of oil. In addition, spray lubrication is provided.

Two rolls 36 in. in diameter and 8 ft. 6 in. in length can be turned simul-

taneously on the second lathe here shown, the headstock of which is also equipped with roller bearings. It has spray lubrication for the gear teeth



*The Headstock Mechanism Is Automatically Lubricated. The 31-in. roll lathe is shown above and the 36-in. lathe, which simultaneously turns two rolls  $8\frac{1}{2}$  ft. long, is at the left*

and pressure grease lubrication for the bearings. The motor is mounted directly on the headstock and is arranged to drive the machine through a flexible coupling.

### Offers New Portable Pneumatic Riveter

THE Hanna Engineering Works, 1765 Elston Avenue, Chicago, has made available the portable pneumatic riveter illustrated, which weighs



*Pressure of 1 Ton Is Exerted on the Dies When the Riveter Is Operated at 100-Lb. Air Pressure. The weight of the machine is 15 lb.*

only 15 lb. and is designed for driving tubular bronze or steel rivets up to 3/16 in. in diameter. The machine exerts 1-ton pressure on the dies when operated at 100 lb. per sq. in. air pressure. The depth of throat, or reach, is 5 in., the gap, 2 in. and the die stroke, 1 in.

Air supply to the tool is controlled by a thumb-actuated valve in the pistol grip. The rivet driving die is connected directly to the pistons, of which there are two, the return stroke being actuated by springs. The handle may be located at the end of the machine as shown, or at the top, to suit conditions. The machine is said to be particularly adapted for the riveting of automobile hoods, bodies, instrument panels and similar work.

### Establish New York-Cleveland All-Water Line

A through water transportation line between Cleveland and New York is being established by the Erie & St. Lawrence Corporation, a subsidiary of the Great Lakes Grain Corporation, Buffalo. This company has five 252-ft. steel ships, driven by Diesel engines and having a capacity of 1500 to 1600 tons at 9½-ft. draft. These boats have been in service carrying grain from Buffalo to New York and Montreal.

The establishment of the new line is the result of negotiations with the Cleveland Chamber of Commerce. The operation of this line will be somewhat experimental this year, but, if it proves successful, regular service will be established next season. It is stated that there will be no difficulty in securing cargoes for west-

bound shipment, but experimental service will be necessary to determine whether there will be sufficient east-bound cargoes.

The route of the line is via Lake Erie, the Welland Canal, Lake Ontario, the Oswego Canal, the New York State Barge Canal and the Hudson River. Boats will make the trip between Cleveland and New York in six days. A cargo of sugar will be delivered in Cleveland on one of these boats at the end of this week, and

some steel products, including wire and rivets, have been lined up for the return cargo. A rate of 30c. per 100 lb. is being made on iron and steel, this including marine insurance and terminal charges. This rate is 10c. per 100 lb. under the rail rate. It is expected that if the line is permanently established considerable tonnage in steel products will be shipped over its boats to New York for reshipment to Gulf ports and the Pacific Coast.

## Railroads Protest P., L. & W. Extensions

### Intervening Roads Maintain That Proposed Connecting Links Would Give Pittsburgh Coal Co. Monopoly on Coal into Youngstown

WASHINGTON, Aug. 28.—Exceptions to the proposed report of C. V. Burnside, assistant director of the Interstate Commerce Commission, recommending that the commission authorize the Pittsburgh, Lisbon & Western Railroad to establish a new rail route between Smiths Ferry, Pa., and the Youngstown district, were filed with the commission last week by the three intervening Trunk Line carriers, the Pittsburgh & Lake Erie, the Pennsylvania and the Baltimore & Ohio. They contended that the new construction would not be in the public interest, as required by the act under which application for permission to construct the new route was made.

In the course of their numerous exceptions, the three roads protested against the failure to find that the proposed construction and operation by the P., L. & W., under the control of the Pittsburgh Coal Co., would enable the latter company to enjoy a monopoly in the marketing of coal in the Youngstown district. It was maintained that the operation of the new line would enable the Pittsburgh Coal Co. to suppress competition between shippers of commercial coal from the Pittsburgh and Connellsville districts to the Youngstown district and, in effect, limit the operation of the P., L. & W. to the private purposes of the coal company. It was pointed out that the report failed to mention the fact that the P., L. & W. would own no terminal facilities at Smiths Ferry for transferring coal from barges to railroad cars, but that those facilities would be owned and operated by the coal company.

#### Private Shipping Prevented

Replying to the statement in the report that the Government has expended large sums of money in the improvement of the Monongahela and Ohio rivers for the purpose of encouraging navigation on those rivers, the Trunk Line carriers declared that the Government has not expended this money to encourage private shipping and control by a private industry of the wharves and other facilities giv-

ing access to a railroad owned by that industry.

The purpose, it was stated, is to have the rivers utilized by common carriers so that the general public may receive the benefits.

The Pittsburgh Coal Co. and the Youngstown Sheet & Tube Co., it was explained, have acquired about one mile of the water frontage at Smiths Ferry, "and in view of the testimony that available sites at that location are not plentiful, it is evident that any other shipper would very likely have considerable difficulty in finding a location for terminal transfer facilities of its own." It was declared that the Republic Iron & Steel Co. and the Sharon Steel Hoop Co., which intervened on behalf of the applicant, as did the Youngstown Sheet & Tube Co., would find themselves subjected to the dictation of the Pittsburgh Coal Co. as to whatever terms the latter company might see fit to exact for the privilege of using the proposed new line.

#### Pittsburgh's Advantage Geographical

It is conceded by the applicant, the Trunk carriers said, that the latter have ample facilities for handling traffic that would be moved over the proposed extensions. A principal reason assigned for the construction of the proposed lines is to enable the publication of certain rates on bituminous coal inbound to Youngstown and on finished steel products shipped from the Youngstown district, the Youngstown district industries claiming that they are at a disadvantage compared with the Pittsburgh district companies as to rates on raw materials used in making steel. The advantage, if any, that may be enjoyed by the Pittsburgh and Aliquippa, Pa., industries, it was declared, is due to geographical conditions, and the commission in many cases has decided that rates cannot be equalized on that account. The carriers also contend that the P., L. & W. would have no assurance that it could legally maintain the proposed rate of 60c. a ton on coal between Smiths Ferry and Youngstown.



## Business Analysis and Forecast

# Better Business Conditions Predominate

Upturn of P-V Line Indicated, Presaging Improvement in  
General Trade—Many Conflicting Factors

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

**W**HILE the total industrial situation is about normal and, on the average, the demand and supply in the commodity markets are in fair balance, the situation is not definitely bullish. Commodity prices in general have moved somewhat irregularly during the past few months, with no pronounced trend. Weakness in agricultural commodities and in some of the basic raw materials indicates that the supply is in excess of requirements and larger than the demand could take care of at existing prices. We think steel production has been recently somewhat in excess of requirements, an opinion that is confirmed by the sharp decline in unfilled orders during the latter part of July. The total situation is illustrated by the nearly sidewise movement of the P-V line, which shows no great maladjustment be-

tween supply and demand, on the average.

As to the money situation, there is no change to report in fundamentals except that the outward movement of gold has apparently ended, leaving conditions to become adjusted to our reduced gold supply. Commercial loans continue to increase and brokers' loans, in spite of recent small declines, remain too large. The seasonal demand for funds in connection with crop moving and currency requirements has already begun. The member bank borrowings from the Reserve banks remain at over one billion dollars. The banks continue to liquidate securities. Their net demand deposits are declining.

We see no prospects of any considerable gold imports, as, on the one hand, foreign governments are certain to support exchange rates and are pre-

pared to raise their rediscount rates if necessary, while, on the other hand, the Federal Reserve Board's policy is obviously unchanged. We must remember that the yield on invested capital in the United States is now too low to be attractive, and that high short-term money rates can be permanently relieved only by the process of liquidation in those quarters which are responsible for the current stringency.

### *Influence of Money Rates*

**T**IGHTENING of bank credit is the most immediately active unfavorable factor in the business situation. Ultimately building activity will slow down as a result of this factor. The let-up in July may have been due to high rates for money and may possibly mark the beginning of a decline in building operations. Such an occur-

## Factors in the General Business Outlook

### *Favorable Factors*

- (1) *Automobile production and sales large for the season.*
- (2) *Retail trade in good volume and above a year ago.*
- (3) *Merchandise exports and imports increased in July; gold exports reduced.*
- (4) *Payrolls and earnings increased in July; employment held steady.*
- (5) *Moderately favorable agricultural situation.*
- (6) *Earnings statements indicate that average company has been making fair progress.*
- (7) *Strong financial position of leading companies.*
- (8) *Light mercantile inventories.*

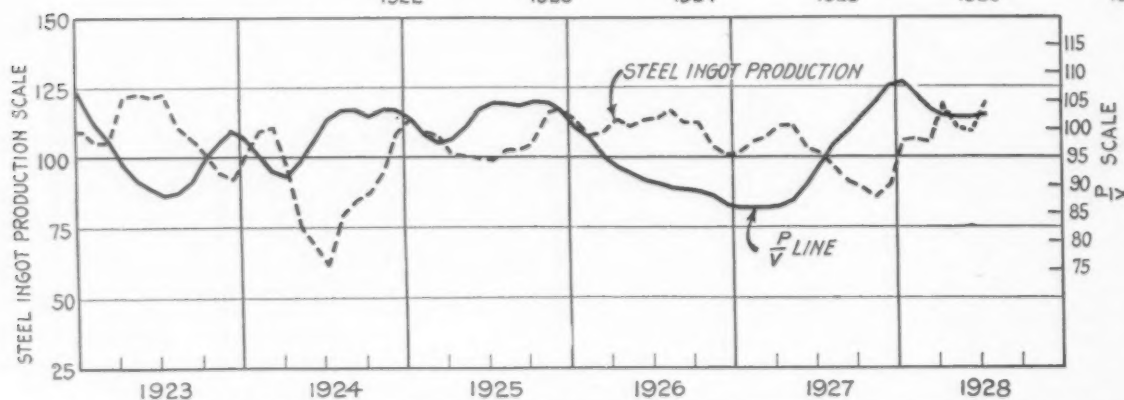
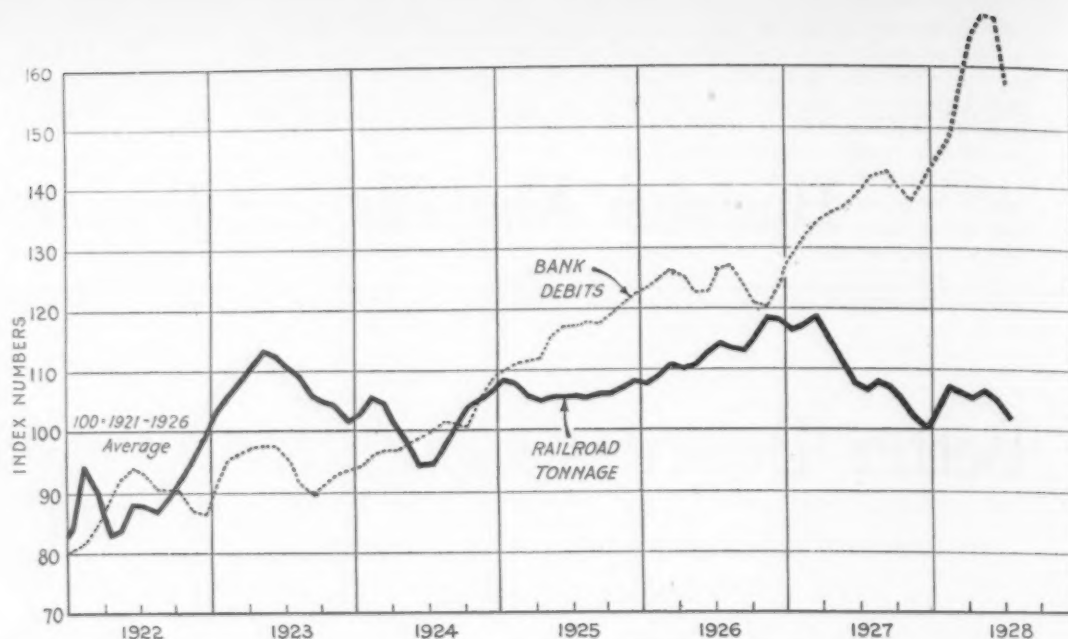
- (9) *Absence of any important industrial maladjustment.*

- (10) *General commodity prices firmer recently; non-agricultural prices in July were the highest in a year and a half.*

### *Unfavorable Factors*

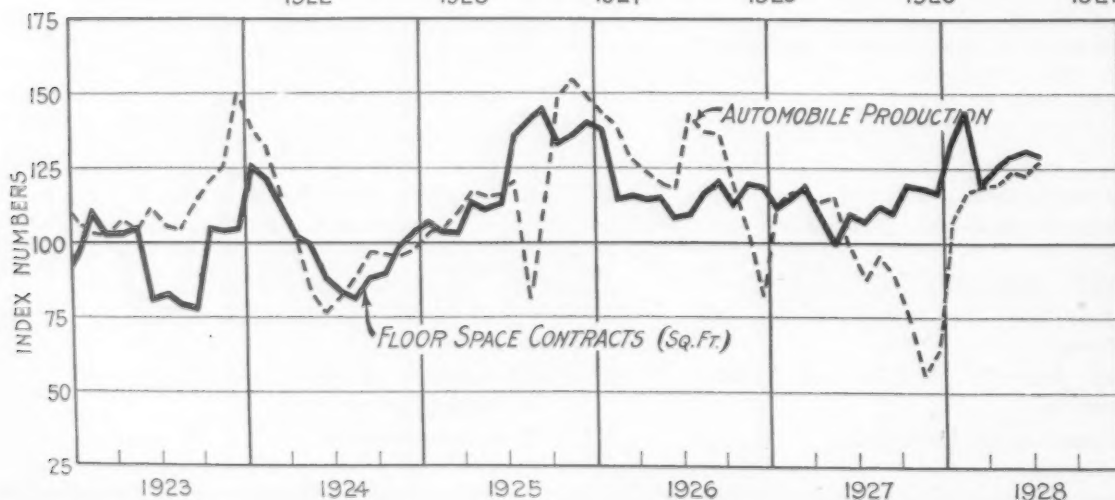
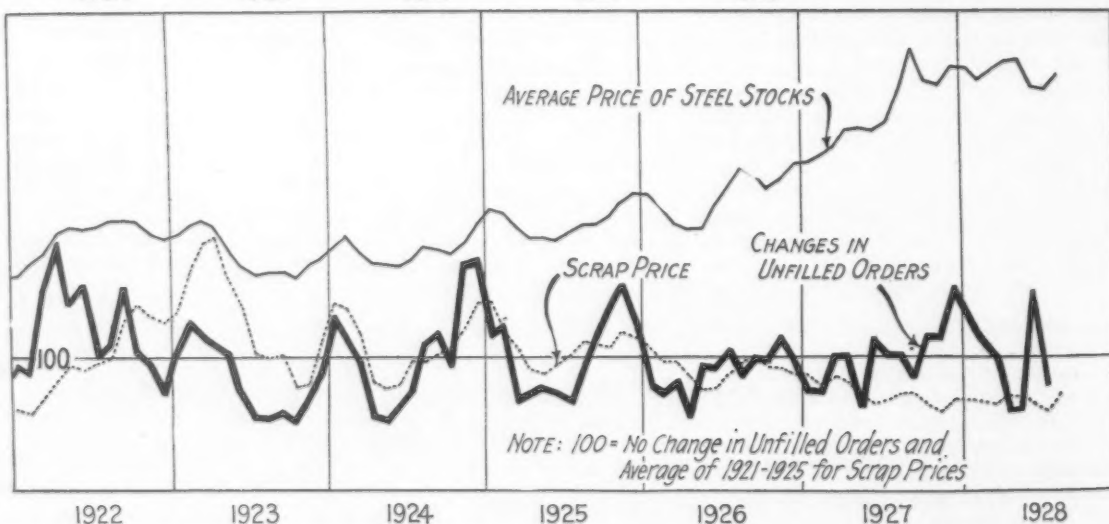
- (1) *Building activity fell off in July; sharp slump in contemplated new construction.*
- (2) *Money tighter and bank credit more strained; net demand deposits declined, while loans continued near record levels.*
- (3) *Decline in unfilled steel orders.*
- (4) *Railroad earnings and traffic relatively low.*
- (5) *Large average stocks of manufactured goods held by producers.*
- (6) *Political uncertainties.*

Freight Traffic Has Dropped to Almost Its Lowest Point Since 1924 and Is Far Below Its Normal Relation to Bank Debits. These have declined after making the highest record ever known, but it is largely speculative



Sidewise Movement of the P-V Line (Ratio of Commodity Prices to Physical Volume of Trade) Seems to Indicate an Early Rise. Steel production (adjusted) has moved upward sharply

Unfilled Orders Have Again Turned Downward, and Are Lower Than in March; Stock Prices, Though at a Higher Level, Are Irregular and Scrap Prices Are Still Weak but Better



Both Building Activity and Automobile Output Showed Continued Strength in July. They are higher than they were at any time during 1927 or the last quarter of 1926



rence would have a considerable effect in retarding all business.

The farm situation appears favorable, but it is too early to appraise it fully, for if wheat and cotton were to fall much lower in price the total receipts from these great cash crops could easily show a decline, in spite of the large yields. Wheat farmers particularly are threatened by the competition of a bumper Canadian crop in the world market. Any favorable developments in the farm situation are likely to be counter-balanced by the bank situation, which promises to continue strained for several months.

Retail trade continues to be a rather uncertain factor, the reported gains being chiefly due to changes in the number of stores included in the reports. Department store sales showed an approximately steady trend last month, considering the season. Factory employment held steady at about the low level of July, 1924. Payrolls and earnings increased sharply, indicating a high percentage of full-time operation.

Weighing all the favorable and unfavorable factors, we incline to the opinion that the money conditions and their effect on building operations hold the keys to the situation, and that at present the outlook is therefore uncertain, with the evidence at hand showing a balance on the unfavorable side. The absence of severe industrial maladjustment, however, aided by the strong financial position of leading companies and light mercantile inventories, and the proved ability of the majority of the leading companies to make fair earnings in the first half of the year, all indicate that business is not likely to decline much.

### Ingot Production Remains Very High

AFTER allowing for the usual seasonal change, steel ingot production in July reached a new high for 1928; in fact, even after allowing for estimated normal growth, the index stood at the highest point since July, 1923. This action is in accordance with the tendency for the P-V line to move upward after a sidewise trend for several months. As yet this is only a tendency, but the condition of firming commodity prices and moderate volume of trade, if continued, may lift this barometer in August. Any such rise would have a favorable significance for steel production and business in general. It should be remembered, however, that the decline in unfilled orders in July indicates that the rate of steel shipments was higher than that of sales, and casts doubt on the probability of much further increase in production.

### Rampant Speculation Continues Unabated

OUR second chart portrays a situation that has lately become all too familiar. Business activity as measured by an index of the volume of railroad traffic is not quite up to a year ago. Meanwhile, the index of bank

debits, which is influenced by speculation, remains far out of line with the volume of trade, even after a certain amount of liquidation has taken place in the stock market. The latest car loadings statements indicate a volume of trade about equal to that of a year ago, while the renewed public interest in speculation and the consequent increase in the volume of trading will tend to increase the amount of debits and intensify what appears to be a maladjustment.

### Building Activity and Automobile Output High

THE third chart is of interest, as it shows the situation in two of the leading key industries (building and automobiles), which ordinarily consume over one-third of all the steel produced. Both of these industries held at a high level in July, and they were largely responsible for the high rate of steel production at a season when conditions are normally dull.

Automobile production in July, according to our estimates for the United States and Canada, was 127.3 per cent of the average of the past seven years. Allowance was made for the usual seasonal changes. This compares with an index of 122.2 in June and 87.5 a year ago. Thus, activity in July reached the highest point since September, 1926. However, current reports indicate a falling off in production which may be more than seasonal. Sales are said to be holding up well, so that no severe decline is looked for. Moreover, Ford plans to step up production through the rest of the year, and this may help to offset the usual seasonal decline from July through December.

Building activity slumped in July. Contracts have declined only slightly more than is usual for the season, but there has been a rounding off tendency for several months, which leaves the

index below the February peak for 1928, and 20 per cent below the 1925 high. The decline in contemplated construction in July of over 30 per cent in the seasonally adjusted index, and the decline in permits in both June and July suggests the possibility of a further decline in contracts, as plans precede construction. Whether or not this happens immediately, it must be remembered that eventually high money will slow down building activity. Rents (or income) are declining; interest rates (costs) are increasing. The ultimate effect is obvious.

### Steel Shipments Have Outrun Orders

RENEWED drop in unfilled steel orders in July confirms our statement that the sharp June increase was unconvincing. Production and shipments have increased too fast for sales to keep ahead. It is true that, taking the past two months together, unfilled orders have increased, but they are now well below the level of March. Prices of heavy melting steel scrap declined in July, but showed signs of turning. The August average will be up sharply, which action follows the big increase in unfilled orders in June. The effect of the July decline had not yet been felt in the scrap market.

The price of steel stocks has increased rather sharply of late. The stock price index fluctuates in more or less sympathy with that of scrap prices. The recent increase in stocks followed closely upon the marking up of \$1.50 a ton in scrap prices during the past month. The high rate of production, however, has increased the supply of scrap and, in view of the decrease in unfilled orders, a check may be expected in the scrap market. Steel stocks will probably respond to any such change.

### Pig Iron Imports Drop Sharply

IMPORTS of pig iron in July are reported by the Department of Commerce at 6055 gross tons, compared with 11,799 tons in June and 9732 tons in May. As recently as April a total of 20,845 tons was reported. The July figure is 42 per cent lower than that of a year ago, when 10,377 tons came in. For the first seven months there has been an in-

crease of about 15 per cent, the total reaching 81,350 tons.

Nearly half of the incoming movement was from the United Kingdom, which supplied almost 35,000 tons in the seven months, against less than 15,000 tons a year ago. British India, which stood first last year, showed a slight decline and is now second. The Netherlands also showed a slight decline and is in third position. Germany has almost disappeared as a supplier of pig iron to the United States.

UNITED STATES IMPORTS OF PIG IRON BY COUNTRIES OF SHIPMENT  
(In Gross Tons)

	July		Seven Months Ended July	
	1928	1927	1928	1927
United Kingdom .....	50	3,042	34,777	14,935
British India .....	2,994	5,405	26,774	28,197
Germany .....	.....	.....	95	7,811
Netherlands .....	2,325	1,025	15,840	17,045
Canada .....	.....	.....	378	689
France .....	300	500	300	523
Belgium .....	.....	.....	202	300
Norway .....	.....	.....	91	.....
All others .....	386	405	2,893	1,196
Total .....	6,055	10,377	81,350	70,696

## Fabricated Structural Steel

### Chicago Apparel Mart Will Take 74,000 Tons—Awards of 37,500 Tons Include 12,000 Tons for Toronto Building

**I**NCLUDING 74,000 tons for the Chicago Apparel Mart, new structural projects reported during the week totaled 104,000 tons. Other large jobs announced were a hotel addition at Toronto, calling for 7000 tons, a warehouse at Akron, Ohio, taking 4000 tons, and an automobile plant building at Weston, Ont., which will require 3500 tons. Awards of 37,500 tons were swelled by 12,000 tons for a furniture building at Toronto and 4000 tons for a rubber plant building at the same city. Awards follow:

BOSTON, 120 tons, George White Fund health unit No. 4, to A. L. Smith Iron Works.  
NEW YORK, NEW HAVEN & HARTFORD RAILROAD, 150 tons, bridge, to Shoemaker Bridge Co.  
STATE OF NEW JERSEY, 200 tons, State hospital work, to Dover Boiler Works.  
STATE OF NEW JERSEY, 200 tons, highway bridges, to American Bridge Co.  
PENNSYLVANIA RAILROAD, 150 tons, bridges, to Bethlehem Steel Co.  
READING RAILROAD, 500 tons, Fifth Street Bridge at Reading, Pa., to Bethlehem Steel Co.  
PENNSYLVANIA RAILROAD, 100 tons, electrification work, to Lehigh Structural Steel Co.  
BALTIMORE, 300 tons, highway bridge, to Detrich Brothers.  
WASHINGTON, 1500 tons, Lincoln Memorial Bridge, to Phoenix Bridge Co.  
ALBERTVILLE, ALA., 150 tons, Saratoga Victory Cotton Mills, to Virginia Bridge & Iron Co.  
RANKIN, PA., 220 tons, Monongahela River bridge traffic circle, to John Eichleay, Jr., Co.  
CHARLESTON, W. VA., 3000 tons, two Kanawha River bridges, to Independent Bridge Co., Pittsburgh.  
TORONTO, 12,000 tons, furniture building for T. Eaton Co., to Dominion Bridge Co.  
NEW TORONTO, ONT., 4000 tons, plant building for Goodyear Tire & Rubber Co., to McGregor & McIntyre Structural Steel Co., Ltd.  
CLEVELAND, 1400 tons, subway work for Cleveland Union Terminals Co., to Carnegie Steel Co.  
CLEVELAND, 545 tons, West 117th Street grade crossing for New York Central Railroad, to unnamed fabricator.  
TOLEDO, OHIO, 500 tons, addition to Willys-Overland plant, to American Bridge Co.  
SPRINGFIELD, OHIO, 600 tons, building for Springfield Metallic Casket Co., to Bellefontaine Bridge Co.  
CINCINNATI, 100 tons, Eastern Hills Y. M. C. A. building, to General Iron Works.  
DETROIT, 800 tons, furnace bindings for Ford Motor Co. steel works, to Jones & Laughlin Steel Corporation.  
DETROIT, 135 tons, car storage building for Chrysler Corporation, to McClintic-Marshall Co.  
FLINT, MICH., 150 tons, theater, to Guilbert Steel Co.  
STATE OF INDIANA, 500 tons, miscellaneous work, to Indiana Bridge Co., Muncie, Ind.  
STATE OF ILLINOIS, 3000 tons, lock gates at Brandon Road and Dresden Island for Illinois Waterways Commission, to Independent Bridge Co.  
STATE OF ILLINOIS, 575 tons, miscellaneous work in Indiana and Illinois, to Rochester Bridge Co., Rochester, Ind.  
CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC RAILROAD, 900 tons, bridge, to unnamed bidder.  
WABASH RAILWAY, 260 tons, bridge, to American Bridge Co.  
MILWAUKEE, 500 tons, Bankers' Building, to American Bridge Co. and Milwaukee Bridge Co.

EAST MOLINE, ILL., 800 tons, building for Deere & Co., to Rochester Bridge Co.  
ST. LOUIS, 150 tons, freight house for Wabash Railway, to Stupp Brothers Bridge & Iron Co.  
OLYMPIA, WASH., 450 tons, Marblemont bridge over Skagit River, to Pacific Car & Foundry Co.  
WARDEN, WASH., 400 tons, highway bridge, to Pacific Car & Foundry Co.  
SEATTLE, 200 tons, Second Avenue extension, to Hoffus Steel & Equipment Co.  
OAKLAND, CAL., 1160 tons, office building at Fourteenth and Franklin Streets, to Judson-Pacific Co.  
OAKLAND, 250 tons, hangar No. 4 for Port Commission, to Moore Dry Dock Co.  
SAN FRANCISCO, 1400 tons, pier 45 for State, to Pacific Coast Steel Co.  
SAN FRANCISCO, 100 tons, apartment at Ninth Avenue and Judah Street, to Judson-Pacific Co.

#### Structural Projects Pending

BOSTON, 250 tons, Back Bay station.  
BOSTON, 170 tons, stores on Newbury Street.  
BOSTON & MAINE RAILROAD, 100 tons, bridge.  
STATE OF VERMONT, 200 tons, highway bridges.  
STATE OF NEW YORK, 700 tons, highway bridges.  
NEW YORK CENTRAL RAILROAD, 300 tons, bridge at Hastings, N. Y.  
BALTIMORE & OHIO RAILROAD, 500 tons, bridges at Chicago.  
STATE OF PENNSYLVANIA, 400 tons, highway bridges.  
CAMDEN, N. J., 500 tons, safe deposit vaults for Camden Safe Deposit & Trust Co.; Ketcham & McQuade, Philadelphia, general contractors.  
WASHINGTON, 150 tons, highway bridge.  
BUFFALO, 1000 tons, plant building for Bliss & Laughlin, Inc.  
TORONTO, 7000 tons, extension to Royal York Hotel.  
WESTON, ONT., 3500 tons, addition to plant of Willys-Overland, Ltd.  
AKRON, OHIO, 4000 tons, warehouse for B. F. Goodrich Rubber Co.  
MIDDLETOWN, OHIO, 900 tons, warehouse for American Rolling Mill Co.  
CINCINNATI, 180 tons, building for St. Louis Parish.  
CHICAGO, 74,000 tons, architect's preliminary estimate for Apparel Mart.  
CHICAGO, 1900 tons, mill building for Interstate Iron & Steel Co.  
CHICAGO, 800 tons, addition to Chicago Club.  
ST. LOUIS, 200 tons, Delmar Avenue station for Wabash Railway Co.  
ST. LOUIS, 100 tons, St. Michael's and All Angels' Church.  
NEW ORLEANS, 1800 tons, American Bank Building.  
SAN ANTONIO, TEX., 1300 tons, Nix office building.  
SAN ANTONIO, 1300 tons, Alamo National Bank Building.  
SAN ANTONIO, 200 tons, Groor National Bank Building.  
SEATTLE, WASH., 500 tons, addition to Olympia Hotel.

STATE OF WASHINGTON, 375 tons, two State highway bridges.  
OLYMPIA, WASH., 450 tons, Nugents bridge in Whatcom County; Ward Construction Co., Tacoma, Wash., low bidder on general contract.  
TACOMA, WASH., 330 tons plates, 32-in. pipe line for city; Birchfield Boiler Co., low bidder.  
TACOMA, WASH., 700 tons, addition to Hooker Chemical Co. plant.  
RICHVALE, CAL., 170 tons, plant for Pacific Coast Paper & Pulp Co.

## Reinforcing Steel

### Chicago Apparel Mart Calls for 12,000 Tons

**W**ITH the Chicago Apparel Mart calling for approximately 12,000 tons of reinforcing bars, new projects reported during the week amount to 15,600 tons. The following awards, totaling 5200 tons, include no projects of outstanding size:

NEW YORK, 700 tons, foundations for Western Union Building; from Turner Construction Co., general contractor, to Jones & Laughlin Steel Corporation.  
KEARNY, N. J., 700 tons, plant buildings 51 and 52 for Western Electric Co., Inc., to Joseph T. Ryerson & Son, Inc.  
CHICAGO, 140 tons, miscellaneous work for city, to Joseph T. Ryerson & Son, Inc.  
COOK COUNTY, ILL., 850 tons of rail steel, road work, to Barton Spiderweb System, Inc.  
STATE OF ILLINOIS, 100 tons of rail steel, road work, to Calumet Steel Co.  
RIVER FOREST, ILL., 100 tons, reservoir, to Concrete Engineering Co.  
EAST CHICAGO, IND., 600 tons of rail steel, plant building for United States Gypsum Co., to Calumet Steel Co.  
ST. LOUIS, 600 tons, Terminal Railway Association express terminal for American Railway Express Co., to Laclede Steel Co.  
ST. LOUIS, 400 tons, sections 2 and 3 of Southwestern Joint Sewer District, to Missouri Rolling Mills Corporation.  
SEATTLE, WASH., 650 tons, Hanford Street sewer, to Pacific Coast Steel Co.  
SEATTLE, 175 tons, Cushman spillway, to Northwest Steel Rolling Mills.  
SEATTLE, 150 tons, West Waterway bridge, to Northwest Steel Rolling Mills.  
SEATTLE, 100 tons, addition to Seattle Ice Cream Co. plant, to Pacific Coast Steel Co.  
SAN FRANCISCO, 150 tons, pier No. 45 for State, to Pacific Coast Steel Co.  
SACRAMENTO, CAL., 145 tons, State hospital at Eldridge, to Pacific Coast Steel Co.

#### Reinforcing Bars Pending

RIVERTON, N. J., 200 tons, road work. Cizzienti Brothers, general contractors.  
BUFFALO, 300 tons, Genesee garage, Metzger Construction Co., general contractor.  
BUFFALO, 200 tons, superstructure for Rand Building; bids in.  
CLEVELAND, 950 tons, Lakeside Hospital buildings.  
CHICAGO, 12,000 tons, architect's preliminary estimate for Apparel Mart.  
WAUKEGAN, ILL., 225 tons, department store building.  
SEATTLE, 500 tons, addition to City-County buildings; bids in September.  
SEATTLE, 500 tons, addition to Olympic Hotel.  
SAN FRANCISCO, 525 tons, Bernal Cut project; bids Sept. 17.  
SAN FRANCISCO, 200 tons, warehouse for Simmons Bed Co.



# This Issue in Brief

Heating and forging operations are synchronized into straight-line mechanical production in bolt plant. Forging furnace, coupled to each hot bolt-heading machine, is fed by wire passing from coils through furnace and directly into machine. This necessitated automating heating operation and providing capacity for delivering wire at high speed.—Page 517.

\* \* \*

Will observe centenary of invention of hot blast. First step in fuel economy and consequent high output of blast furnaces increased furnace output from 37,500 tons in 1830 to 200,000 tons in 1840.—Page 512.

\* \* \*

Three electrically operated rotary furnaces in automotive plant do work formerly requiring 26 oil-fired furnaces. Heating costs are higher, but direct labor charges have been reduced one-half and quality of product is greatly improved.—Page 514.

\* \* \*

Says tightening of bank credit is most immediately active unfavorable factor in present business situation. Dr. Haney holds that this will ultimately slow down building activity and that let-up in July, resulting possibly from high money rates, may mark beginning of decline in building operations.—Page 525.

\* \* \*

Metallurgical division of Bureau of Standards receives 3000 letters and 600 personal visits requesting information each year. Majority of these inquiries deal with wear of metals.—Page 510.

Carburizing boxes at Dodge plant are of three-piece construction,  $11\frac{1}{2} \times 16 \times 8\frac{3}{4}$  in. in dimensions, and are made of Q-alloy or a nichrome heat resisting alloy. Cast corners and rolled alloy sides which are cast into corners help to prevent breakage.—Page 513.

\* \* \*

Cold heading and cold nut department produces 2,000,000 nuts and 1,000,000 bolts daily. Nut machines are placed in parallel rows with aisles between, which are spanned by cranes distributing raw materials from industrial cars to machines. Finished product is discharged into buckets handled by monorails operating in outer aisles.—Page 516.

\* \* \*

Exports and imports of iron and steel both declined in July. Export total was 3.3 per cent under June, but considerably larger than total for corresponding month last year. July imports declined 27.3 per cent.—Page 555.

\* \* \*

Distinction between "practical" and "theoretical" research is artificial, says metallurgist. Important advances have often resulted from work undertaken for purely practical purposes, and vice versa. Search for fundamental facts is not affected by reasons prompting investigation.—Page 512.

\* \* \*

Precision is achieved in automatic cutting and welding machinery. Self-indexing and automatic control devices worthy of best quality machine tools are now installed on equipment for production work.—Page 521.

Raw materials used in bolt plant are analyzed upon receipt and are tagged with this analysis. Same tag is put on material after it is rolled and follows it through plant. In this manner all defective products can be traced back to original shipment of raw material.—Page 518.

\* \* \*

Plant is operated 88 hours a week on two shifts. Plan gives all workers nearly half day of daylight out of shop, reduces overhead costs and keeps down investment in equipment, as each machine is made to yield a maximum return during years when it is still modern.—Page 520.

\* \* \*

Thinks Belgium, Germany and Italy are European countries offering most promising field for American machinery. Machine tool manufacturer predicts boom for automotive industry in Europe and finds widespread adoption of American mass production methods.—Page 559.

\* \* \*

Economist sees prospect of little decline in business activity. Absence of severe industrial maladjustment, strong financial position of leading companies, light mercantile inventories and proved ability of majority of companies to make fair earnings in first half are sound conditions.—Page 525.

\* \* \*

Fabricated structural steel, sheets and corrosion-resisting alloys have profited by well directed publicity. Steel industry as a whole is failing to avail itself of opportunities seized by particular branches in marketing special products.—Page 530.

A. I. FINDLEY  
*Editor*

# THE IRON AGE

W. W. MACON  
*Managing Editor*

ESTABLISHED 1855

## Publicity Pays

FROM time to time attention has been called in these columns to the fact that the steel industry taken as a whole is failing to avail itself of one of the most powerful business allies, namely, publicity. It has been pointed out also that publicity means much more than advertising; it includes giving facts to the public generally, and to customers particularly, on many matters which not so many years ago were treated as secret trade information. It involves prompt issuance of statistics on production and stocks, and an adequate and accurate expression of market prices and trends. It is closely allied to an enlightened campaign to improve public relations.

Passing aside for the present any consideration of these more subtle phases, consider for a moment the power of advertising—that most obvious publicity effort. It would be trite to dwell upon the meteoric rise of prosperous companies promoting new devices such as automobiles, automatic refrigerators, vacuum cleaners, electric washing machines, safety razors and radios, and to remind the reader of the commanding part effective advertising has had in their development. "But," it will be objected, "these people had something new, something to catch the attention of the buyer. What is there of similar dramatic appeal in steel?"

Such a reply could come only from a person of small imagination. Structural steel is apparently a humdrum every-day material to those who roll, fabricate and erect it; but it would be a mine of copy for a skilled advertising man. The very bigness of the things done with it would form a most striking series of advertisements. The Hudson River bridge, the Cleveland terminal project, sky-scrapers and massive commercial buildings in all the big cities, subways and a veritable underground world are all made possible by this common grade of steel, apparently so uninspiring to most of its makers. Indeed such possibilities for attractive publicity have already been seized upon by one of the leading steel producers and by an organization of fabricators. More power to them!

And there's sheet steel. A corrugated iron shed or a culvert is probably as prosaic a thing as could well be built. No chance to go into rhapsodies about that applied artistry, beauty and luxurious appointment which seems to permeate the multi-colored advertising pages of our popular magazines. Yet men with a vision of the needs of industry, and an ability to tell the world about the excellencies of their product, have within a generation expanded a small rolling mill into one of the large independent steel-making organizations.

Another impressive example comes in recent years

in the field of corrosion-resisting alloys. An advertising campaign in one popular magazine and 30 trade publications enabled an alloy iron to break all sales records in 1927, whereas the company's other lines were experiencing the recession which was general that year throughout the industry. The same advertising appropriation has been continued for 1928, and it is reported that the satisfactory sales for 1927 are being exceeded by as much as 30 per cent.

Such facts would be cited by advertising men as another instance of the increasing returns from continued and consistent publicity. To us it seems most important as an exhibit of special marketing of an every-day article of commerce, with the aid of proper publicity.

## Bureau of Standards Carries On

MORE than once we have commented on the fact that the metallurgical division of the Bureau of Standards is prevented by lack of funds from attacking many problems which have been proposed and which are within its ability and province. A scant \$125,000 is hardly enough to maintain a going organization of 45 workers, and it is a matter of wonderment and congratulation that so much valuable information is actually produced.

Some of the problems on which work has been requested by industry or by technical societies, but which cannot be taken up until current projects are completed or until more public funds or some assistance from industry are available, are these: Study of methods of testing sheet and strip steel for deep-drawing properties and methods of controlling those properties; study of methods of testing cast iron for machinability; resistance of white bearing metals; study of the fundamentals of the hot galvanizing process; life of piping used in building construction; also several problems on malleable cast iron.

All these subjects are large ones and unless and until funds are in sight to allow work sufficiently exhaustive to bring results it would be wasteful to divide further the attention of the present staff by tackling them as side issues. It certainly would be poor policy to leave a current project unfinished and waste the investment already made in it in order to take up a new one, no matter how important the new one may be. The metallurgical division is thus well advised to adhere to the lines of work already in hand until funds are available for branching out.

No increase in Governmental funds is in sight—in fact a slight decrease appears probable for the next



fiscal year—and it seems likely, therefore, that new problems will be approached only as old ones are finished.

This situation makes it imperative to appraise the suggested new projects so they may be placed in the order of their importance and of the justification for expending public funds on them. On this matter the comments and advice of that cross-section of industry consisting of the readers of *THE IRON AGE* would doubtless be gladly received by the director of the Bureau of Standards.

Organizations in the metal-working field with specific problems to solve and yet without well equipped laboratories should also remember that the "research associate plan" may be the quickest and best way to reach an answer. Briefly the plan is this: If the problem is of sufficient general interest, the Bureau of Standards will receive as guest a competent investigator, whose salary will be paid by the commercial organization proposing the problem, but who will be tendered freely the use of the bureau's equipment.

One of the great advantages of this plan is the contacts which the research associate has with the staff at the Bureau of Standards. Every one knows that these men at the bureau have no financial interest in the problems they study and no tendency toward bias. They are interested solely in what the facts may be, irrespective of whether they lead to one conclusion or another. This impartial and unbiased point of view is a precious possession and the one from which a commercial investigator can receive most inspiration.

### The Politicians and the Farmers

**B**OTH Mr. Hoover and Mr. Smith have now made their speeches and among many other things have expressed their views in regard to the agrarian problem. Neither has been satisfactory to the professional exponents of the corn planters and wheat growers, for to them no sound thinking man can possibly be satisfactory; and both Mr. Hoover and Mr. Smith are sound thinking.

The grievance of the Western farmers may be summarized simply as the complaint against low prices. The plain reason for the latter is that so much wheat and corn are being produced that the growers have to accept low prices in order to dispose of them. Indeed they produce an exportable surplus that has to meet the competition of producers everywhere in the world. The only economic method of elevating the world's price is for producers to reduce their output; but that is something that they refuse to do voluntarily, and will do only under economic constraint, which always is painful. In fact, we are now producing larger crops from fewer farms and with fewer men. This compels a certain migration from the farms to the towns. There is no way of preventing that, and there ought to be no thought of trying to prevent it, for it is the natural economic development. Anything like price-fixing or the bestowal of bounties would be like throwing gasoline on a fire.

In respect to demand, supply and price equilibrium the situation in major agricultural products is not unlike that which prevails in petroleum, which is another of our great industries, representing as it does about 11 billion dollars of invested capital. The investors in

that industry, especially in the producing companies, are not getting much return and they too would enjoy higher prices; but if anything artificial should accomplish an elevation of price there would be immediately a reswelling of the flood of oil, which is being but barely checked by the prevailing competitive price.

Neither Mr. Hoover nor Mr. Smith could talk so bluntly as this, but it summarizes what they both know, and they could not therefore discuss the agrarian question in anything but generalities which hold out no hopes for the immediate advent of good times to the tillers of the soil. Increased intelligence in planning, in operating and in marketing is desirable and will be beneficial, and the Government should and will do everything in its power to promote this, but such a program does not greatly intrigue the professional exponent of agrarian ills, who wants a sharply rising market for wheat and corn and farm lands, and wants it soon.

### These Money-Saving Reforms!

**A**DVOCATES of simplified spelling say that the adoption of a phonetic system would save the American people 600 million dollars a year in their printing bills and 900 millions in the education of school children. The advocates of the metric system of weights and measures assert that their ideas would save us 800 or 900 millions a year. The advocates of calendar reform also have optimistic opinions, which they have not yet ventured to express in figures, but probably their estimates would be generous.

It is told that an energetic effort will be made to pass a bill for calendar reform through the next session of Congress. We are led to wonder why the advocates of spelling reform, weights and measures reform and calendar reform do not pool their issues and unite in one grand reforming bill. This would offer some excellent opportunities for log-rolling.

The estimates of the reformers in respect to the great savings they would effect do not apparently make any account of costs. Alas! It has been our experience in this pragmatic world that nobody ever gets anything for nothing. Even the promoters of wild-cat stocks and the vendors of gold bricks discover that apparent paradoxes to the contrary are always illusionary. If spelling, measuring and calendarial reforms would save us two or three billion dollars a year in our national economy, say a matter of 3 or 4 per cent of our national income, that would be indeed like a treasure-trove; but we fear the cost of the expeditions to get it.

### Purchasing Agents and Profits

**H**OW far the farmer and how far the seller should be held to blame for price demoralization, whenever it occurs, has been much argued, generally without any helpful result. Not long ago the *Purchasing Agent* inveighed against the "myth of profitless prosperity." It challenged the common assertion that "manufacturers are making no money" and particularly absolved purchasing agents from responsibility for the condition, to whatever extent it might exist. Following up this article a like disclaimer was put in by George A. Renard, the secretary of the National Association of Purchasing Agents, in a New York

newspaper interview, in which we find this statement:

This charge was definitely refuted at a recent conference attended by the executives of thirty leading industries which do a very large business with purchasing agents. The thought developed at that conference was that, if the question of over-production is eliminated, such criticism of purchasing agents comes more from sellers who are not able to produce economically than from a real basis of complaint regarding unethical practices of buyers, and that for every so-called unethical practice of the latter many more could be cited against the sellers or their representatives.

There is something reminiscent of the old-time tariff debates in this "pot-and-kettle" aspect of the price problem. Your free trader saw a nation made up of two classes—on the one hand industrial employers and employees, and on the other hand the consumers of the products of industry. What was good for the former, it was argued, could not be anything but detrimental to the latter. But as reason entered more and more into the consideration of the issue, it came to be seen that this nation is not made up of two great camps, one containing all the producers and the other all the consumers, but rather that producers in one field are consumers of the products of another, that the members of the great industrial army have an interest as consumers in fair prices for all commodities, and that all of the millions engaged in agriculture profit by the existence of a large and well employed army of industrial workers.

Some of this comment on the comparative culpability of the purchasing agent and those who sell to him, where business is being done without a living profit, ignores the palpable fact that practically all buying by purchasing agents is for companies which in turn are sellers. Thus the secretary of the purchasing agents' organization, in what he says above, is really charging that for every unethical practice of the purchasing agent of a seller many more could be cited against the salesmen of that identical seller. In other words, he seems to say that the act of selling is a much more serious strain upon the ethical fiber of the average human than the act of buying; and as to that there will be general agreement.

On the charge which the *Purchasing Agent* repels—that buyers' agents would "squeeze the last vestige of profits from their suppliers"—fairness compels at least the Scotch verdict. But "profitless prosperity" being so apt a coinage and having so many grains of truth in it, why try to make it out to be altogether a myth?

WITH the end of the great war nearly ten years back, the Russian steel industry is at last getting to its feet again. The National Federation of Iron and Steel Manufacturers in London, England, reports Russian pig iron output for the first quarter of this year at 272,300 gross tons per month, a gain of about 25,000 tons per month over the 1927 rate. In steel the showing is better—354,000 tons per month for the first three months of the year, a gain of 50,000 tons per month over the rate of a year previous. While pig iron output this year is about 20 per cent under its pre-war volume, steel is only 11 per cent below the rate for 1913 when the steel ingot total was about  $4\frac{3}{4}$  million tons. That

Russia could have reorganized its steel industry and brought it to a degree of activity so nearly approaching that of pre-war time will surprise many who have looked skeptically upon every effort of Sovietism to bring order out of chaos. On such a record one need not doubt that the country in the near future will be largely self-contained as to steel and that central and western European steel works, those of Germany in particular, will have to look elsewhere for much of the outlet in heavy steel products which they have found for nearly ten years beyond the Baltic and the Dniester.

### Light Gains in Automobile Output

RECENT statistics of automobile production are particularly interesting on account of the complications due to the Ford stoppage in May of last year and the recent slow gain, as well as the recent heavy sale of other makes on account of new models. A superficial glance at the statistics may easily mislead to a belief that assumed arrearages are being made up. June and July made large gains over production of a year previous and also made new records for those months, but they gained over the previous records by only about 2 per cent.

It is the longer swing that counts, and the best view is obtained by comparing twelve-month totals. Such totals, of production of passenger automobiles and trucks in the United States and Canada, have been as follows:

12 Months Through July	Total Production
1925.....	4,006,806
1926.....	4,633,353
1927.....	4,120,033
1928.....	3,841,364

No one is likely to attribute to business conditions or the state of general prosperity the decreases in the last 24 months. To be precise, it may be mentioned that it was in October, 1926, that production began to fall below that of a year previous, and thus one may say that decreases began 22 months prior to the present month.

The two influences to be considered are a decrease in the number of new users developing year by year, in an approach to what used to be called "the saturation point," and also that some buyers have been waiting for delivery of the new Ford model. The former can be studied by way of the latter. Exploring the statistics, production in the 12 months through July, 1926, may be taken as a basis, to see what comes of it. Assuming for argument that such production represented a rate, a continuance of that rate during the following 24 months would have given 1,305,000 greater production than has occurred. The arrearage due to people waiting on the new Ford cannot possibly be so great. To produce 1,250,000 Fords in ten months would require 3500 daily in the present month, rising by 500 daily month by month to 8000 next May.

Undoubtedly there is a substantial arrearage, but one cannot avoid the conclusion that the best rate of the past will not in the nearby future be averaged for any great length of time. At present the rate is very high. June showed a total of 425,366 and July 415,671, representing an annual rate of 5,050,000. In the four years, 1923 to 1926, inclusive, June and July production averaged 2 per cent above the calendar year average



rate. Thus it is fair to say that production in June and July of this year typified a 5,000,000 annual rate. We have entered a period of exceptionally heavy production, which is likely to last for quite a while, but a permanent

rate materially exceeding that of two years and more ago is hardly to be expected. What might be called a permanent or regular rate will come when the new Ford is well in and the old Fords are well out.

## American Export Ideas Adopted

### Mechanical Engineers Act on Cable Code—Greatest Need of Aviation Said to Be Flying Instructors

ST. PAUL, MINN., Aug. 27.—Of prime interest to export competition were the results achieved by the representatives of the American Society of Mechanical Engineers at the recent meeting at the Hague of the International Electrotechnical Commission. The society, which is holding a summer convention in this city, had been appointed secretariat for the mechanical standards—which for the moment at least are receiving major attention.

According to information divulged in the meeting of the council of the Society today, American ideas were accepted to a marked degree, such as the common American provisions for overloads in such machinery as steam turbines. No similar basis in designs for prime movers was offered by European builders.

The organization's representatives in the Holland deliberations were Francis Hodgkinson, Westinghouse Electric & Mfg. Co.; I. E. Moulthrop, Boston Edison Electric Illuminating Co., and C. B. LePage, assistant secretary of the society, in charge of standards.

The council approved the proposed simplification of cable codes, authorizing the secretary to notify the Federal Trade Commission to that effect, with a proviso that cable charges must not be increased and thus add to export costs. The society approves five-letter code words instead of 10-

letter words, provided those foreign countries which so largely own or control telegraph lines do not charge more than one-half the present rate for 10-letter words.

Favorable action was also taken recommending officially the plan of the American Arbitration Association to settle commercial disputes without recourse to law.

W. B. Stout, president Stout Metal Airplane Co., Dearborn, Mich., held the sustained interest of a large audience with an address covering, in part, the future of aviation. In five years, according to Mr. Stout, the airplane will barely be recognized from those in use today. Ten hours suffices for training one to drive an airplane, and so, he said, there is a great need of trainers and of moderately priced training planes, particularly as the present available supply is 15 to 20 times the number of aviators qualified to run them. He looks for the Diesel motor to be applied to aviation.

### Automobile Production Still at High Rate

NEW YORK, Aug. 27.—*Automotive Industries* this week will say:

"Continuance of automotive manufacturing in September at a rate exceeding 400,000 cars a month is practically assured by the large number of orders which will be carried over into that month by leading car manufacturers. Orders for models presented during the last two months have run far ahead of factory production capacity, demand in recent weeks having been almost as heavy as in the days immediately following the car introductions.

"Combined production figures of United States and Canadian factories in July show a total output of 415,671, comparing with 425,114 in June and with 279,472 in July last year. All indications at this time are that the August total will surpass July, though the excess over August, 1927, will probably be smaller.

"Reports from the field indicate not only that dealer stocks are small but that they are practically non-exis-

tent. This applies particularly to those dealers handling recent new model cars, though demand for cars of earlier introduction has been consistently large. Used car stocks generally are at much lower figures for the season than in recent years and buying is holding closely to the level of new car buying. Dealers throughout the country express conviction of a maintenance of the buying movement well into the last quarter."

### Air Furnace Brick Reduced to Two Dozen Sizes

"Malleable Foundry Refractories" is the title of Simplified Practice Recommendation R79-28 recently issued by the Bureau of Standards. The standards contained have already been accepted by 45 manufacturers of fire brick and 82 malleable iron foundries. They list two sizes of door-opening tiles, three tap-out blocks, five 13½-in. bungs for roofs, six circle bricks for stacks ranging from 24 to 84 in. diameter, and eight shapes for general work, viz., 9-in. straight, soap,

split and large straight, No. 1 and No. 2 arch and No. 1 and No. 2 wedge.

Upon depletion of the present stocks, all other sizes shall be considered by the manufacturers as specials, and extended delivery dates may be expected.

### Pittsburgh Shippers to Inspect Water Routes

To focus attention on the importance of wharf and river terminal development in order that the community may benefit by the Ohio River improvements which will be completed next year, the shippers' council of the Chamber of Commerce of Pittsburgh is arranging to take a large group of industrial leaders, business men and public officials on an all-day inspection tour of the three rivers within the Pittsburgh district Thursday, Sept. 6. The steamboat Julia Belle Swain has been chartered for the trip. It will go up the Monongahela River as far as Clairton, down the Ohio to Ambridge and up the Allegheny to Aspinwall. Terminals along the route will be inspected.

### Iron and Steel Traffic on Ohio River Surveyed

WASHINGTON, Aug. 28.—The results of a traffic survey to discover the available traffic, in lots of 100 tons and over, into and out of Ohio and Mississippi River points between Pittsburgh and New Orleans, have just been compiled by the transportation division, Department of Commerce. Iron and steel products, exclusive of tin plate, are rated as having available 3,053,279 net tons from 21 cities along or near to the Ohio River, this amount being almost half of the total of 6,638,766 tons for all commodities. Tin plate is rated with 141,020 tons, and coal and coke with 577,000 tons, while the total given for fluorspar is 111,500 tons. Of the 21 cities, Pittsburgh leads the list in the amount of tonnage available, the total being 1,447,477, while Wheeling, W. Va., ranks second, with 1,159,697 ton, and Cincinnati third, with 933,260 tons.

The request for the survey was prompted by the belief that a barge line specializing in freight in quantity lots of 100 tons, or even 500 tons, could operate with a small overhead and the many shippers having such bulk freight available would have their own terminals. This scheme of operation, with large volume and small overhead, it was pointed out, promised water transportation with low rates.

# Iron and Steel Markets

## Further Advances in Pig Iron

Foundry Iron Prices Raised at Birmingham, Chicago, St. Louis  
and Buffalo—Another Rise in Heavy Steel Scrap  
at Pittsburgh—Steel Output Maintained

THE upward trend of prices in the iron and steel market has been given further impetus by the growing strength of primary materials. Advances in pig iron have been accompanied by heavy sales, and scrap prices continue to rise. Business in finished steel is mainly in specifications against contracts, and, notwithstanding scattered concessions on large current orders, mills appear determined to establish the price increases announced for the fourth quarter.

Foundry pig iron prices have gone up 75c. a ton at Birmingham, 50c. a ton at Chicago and St. Louis, and 50c. to \$1 at Buffalo. Pig iron sales for the week totaled 73,000 tons at Cleveland, 60,000 tons at Chicago and 50,000 tons in the Valleys, while commitments for the country at large were well over 275,000 tons.

Furnaces are accumulating comfortable backlogs, some of them being booked for the rest of the year. Considerable tonnage in large inquiries is still pending, and an increasing number of small melters who have been limiting purchases to immediate needs are now seeking contracts through the next quarter.

Heavy steel scrap at Pittsburgh has again advanced 50c. a ton, making a total gain of \$2 since the low point was reached in July. The shortage of steel works scrap is still acute, as reflected in competition among dealers for material to fill their orders.

Output of finished steel products remains at a high level. Ingot production at Chicago is now 80 per cent of capacity, compared with 75 per cent last week. In the Greater Pittsburgh area the rate is between 80 and 85 per cent. The average of the various Steel Corporation subsidiaries, at 75 per cent, has shown only slight variation for several weeks.

Shipping orders, although declining in some products, have increased in others. Gains in sheet specifications, as well as fresh orders for delivery this quarter, apparently reflect a desire to take advantage of the 2 per cent discount for cash payment, which expires Oct. 1. In some cases consumers are buying enough to cover all of their probable needs through the rest of the year.

Releases against contracts for shapes, bars and plates are also heavy, and it is likely that little tonnage will remain unspecified on Sept. 10. Following the practice recently established, fourth quarter contracts for plates, shapes, bars and sheets will contain a clause calling for complete specifications by Dec. 10.

Contracting for the fourth quarter is still of negligible proportions. Concessions have been reported on attractive current tonnages of sheets and heavier rolled products, but these do not preclude adherence to the

price advances announced for the next three-month period. The building up of large backlogs before assuming a stronger position on prices is not without precedent.

Price competition has been keen for pipe line tonnage, particularly between makers of lapweld and electrically welded pipe. Three gas and two oil lines, calling for a total of 1500 miles of pipe, are pending.

The latest price advance for fourth quarter delivery is an increase of \$2 a ton on alloy steel bars. While the new price becomes effective immediately, consumers are generally covered for the current quarter.

In tin plate, a product contracted for by the year or half-year, no change in prices can be expected before the end of December. A reduction in the price for 1929 is a possibility, in view of the decline in pig tin. A seasonal recession in specifications points to a tapering of tin plate output within 30 days. Production for the year will probably be a record, however.

A probable offset to the expected decline in tin plate output is the expanding production of wire products. Wire mill operations have increased to 65 per cent of capacity, and a further gain is indicated. Some makers of wire products have announced that present prices will be continued for the fourth quarter.

Chicago structural fabricators have in prospect 150,000 tons of steel work which may be awarded before the end of the year, this including 74,000 tons for the new Apparel Mart. A furniture building and a rubber plant in Toronto, Ont., one taking 12,000 tons and the other 4000 tons, account for nearly half of the 37,500 tons of structural steel awards in the week.

Railroad buying has taken a more prominent place in the steel market through the purchase of 55 locomotives by the New York Central, 6000 tons of rails by the Missouri-Kansas-Texas and 9000 tons of plates by the Chesapeake & Ohio for car repairs. The latter road will also buy 45,500 tons of rails and 14,000 tons of accessories.

Export shipments of steel have gained appreciably and help explain the high rate of output of those mills that specialize in foreign trade. Exports of iron and steel last month were 33 per cent larger than in July, 1927.

THE IRON AGE composite for pig iron has advanced to \$17.34 a ton, a gain of 30c. over the price prevailing in the previous five weeks, the lowest level reached this year. The finished steel composite is unchanged at 2.348c. a lb.



# A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics  
At Date, One Week, One Month, and One Year Previous

Pig Iron. Per Gross Ton:	Aug. 28, 1928	Aug. 21, 1928	July 31, 1928	Aug. 30, 1927
No. 2 foundry, Philadelphia.....	\$20.26	\$20.26	\$20.26	\$20.76
No. 2, Valley furnace.....	16.50	16.50	16.50	17.50
No. 2, Southern, Cin'ti.....	<b>19.94</b>	19.19	19.19	20.94
No. 2, Birmingham.....	<b>16.25</b>	15.50	15.50	17.25
No. 2 foundry, Chicago*.....	<b>18.00</b>	17.50	17.50	19.50
Basic, del'd eastern Pa.....	19.00	19.00	19.00	20.00
Basic, Valley furnace.....	16.00	16.00	16.00	17.25
Valley Bessemer, del'd P'gh.....	18.76	18.76	18.76	19.76
Malleable, Chicago*.....	<b>18.00</b>	17.50	17.50	19.50
Malleable, Valley.....	17.00	17.00	17.00	17.50
Gray forge, Pittsburgh.....	18.01	18.01	18.01	18.76
L. S. charcoal, Chicago.....	27.04	27.04	27.04	27.04
Ferromanganese, furnace.....	105.00	105.00	105.00	90.00

## Rails, Billets, Etc., Per Gross Ton:

O-h. rails, heavy, at mill.....	\$43.00	\$43.00	\$43.00	\$43.00
Light rails at mill.....	36.00	36.00	36.00	36.00
Bess. billets, Pittsburgh.....	32.00	32.00	32.00	33.00
O-h. billets, Pittsburgh.....	32.00	32.00	32.00	33.00
O-h. sheet bars, P'gh.....	32.00	32.00	32.00	34.00
Forging billets, P'gh.....	38.00	38.00	38.00	39.00
O-h. billets, Phila.....	37.30	37.30	37.30	38.30
Wire rods, Pittsburgh.....	42.00	42.00	42.00	43.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb....	1.90	1.90	1.85	1.80

## Finished Iron and Steel,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia.....	2.12	2.12	2.12	2.12
Iron bars, Chicago.....	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh.....	1.90	1.90	1.85	1.80
Steel bars, Chicago.....	2.00	2.00	2.00	1.90
Steel bars, New York.....	2.24	2.24	2.19	2.14
Tank plates, Pittsburgh.....	1.90	1.90	1.85	1.80
Tank plates, Chicago.....	2.00	2.00	2.00	1.90
Tank plates, New York.....	2.17½	2.17½	2.17½	2.09
Beams, Pittsburgh.....	1.90	1.90	1.85	1.80
Beams, Chicago.....	2.00	2.00	2.00	1.90
Beams, New York.....	2.14½	2.14½	2.14½	1.95
Steel hoops, Pittsburgh.....	2.20	2.20	2.20	2.30

\*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

## Sheets, Nails and Wire,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 24, Pittsburgh	2.65	2.65	2.60	3.00
Sheets, black, No. 24, Chicago	2.75	2.75	2.75	3.10
dist. mill.....	3.40	3.40	3.40	3.85
Sheets, galv., No. 24, Pittsburgh	3.60	3.60	3.60	3.95
Sheets, galv., No. 24, Chicago	2.00	2.00	2.00	2.25
dist. mill.....	2.10	2.10	2.10	2.35
Wire nails, Pittsburgh.....	2.55	2.55	2.55	2.55
Wire nails, Chicago dist. mill.....	2.60	2.60	2.60	2.60
Plain wire, Pittsburgh.....	2.40	2.40	2.40	2.40
Plain wire, Chicago dist. mill.....	2.45	2.45	2.45	2.45
Barbed wire, galv., Pittsburgh	3.20	3.20	3.20	3.25
Barbed wire, galv., Chicago	3.25	3.25	3.25	3.30
dist. mill.....	\$5.25	\$5.25	\$5.25	\$5.50
Tin plate, 100 lb. box, P'gh....				

## Old Material, Per Gross Ton:

Heavy melting steel, P'gh.....	\$16.00	\$15.50	\$14.25	\$15.50
Heavy melting steel, Phila.....	13.00	13.00	13.00	14.00
Heavy melting steel, Ch'go.....	12.75	12.75	12.50	12.00
Carwheels, Chicago.....	12.75	12.75	12.75	14.50
Carwheels, Philadelphia.....	15.50	15.50	15.50	15.50
No. 1 cast, Pittsburgh.....	<b>14.75</b>	14.50	14.25	15.00
No. 1 cast, Philadelphia.....	15.50	15.50	15.50	16.00
No. 1 cast, Ch'go (net ton).....	<b>14.25</b>	14.00	13.50	14.75
No. 1 RR. wrot. Phila.....	13.50	13.50	13.50	15.50
No. 1 RR. wrot. Ch'go (net)....	11.25	11.25	10.75	11.50

## Coke, Connellsville, Per Net Ton at Oven:

Furnace coke, prompt.....	\$2.75	\$2.75	\$2.75	\$3.00
Foundry coke, prompt.....	3.75	3.75	3.75	4.00

## Metals,

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York.....	14.75	14.75	14.75	13.25
Electrolytic copper, refinery...	14.50	14.50	14.50	13.00
Zinc, St. Louis.....	6.25	6.25	6.20	6.25
Zinc, New York.....	6.60	6.60	6.55	6.60
Lead, St. Louis.....	<b>6.22½</b>	6.00	6.00	6.30
Lead, New York.....	<b>6.40</b>	6.20	6.20	6.60
Tin (Stralts), New York.....	47.50	47.87½	47.75	63.50
Antimony (Asiatic), N. Y.....	10.25	10.25	10.00	12.00

## Pittsburgh

### Steady Flow of Specifications on Third Quarter Contracts— Heavy Pig Iron Buying—Scrap Prices Higher

PITTSBURGH, Aug. 28.—The flow of specifications on third quarter contracts still is steady and strong to steel manufacturers in this and nearby districts and finishing mill operations remain at a rate that requires an ingot production of between 80 and 85 per cent of capacity. Makers of seamless pipe have enough business to keep them well engaged for the remainder of the year and the situation is much the same in large outside diameter pipe for oil and gas lines. Shipping instructions on sheets are pouring in freely and almost invariably the promptest possible delivery is asked. Tin plate has begun to slow up, as usual at this time of the year, but as a partial offset to that is the fact that wire products are moving a little better than they did last month. There is no let-down in the movement of strips on old orders, nor are cold-finished steel bars yet reflecting any recession in the high rate of activity of the automotive industry, the principal outlet for these products. The shipments of the heavy tonnage products leave little to be desired.

From the standpoint of plant engagement and the way consumers are ordering out their purchases, the situation has rarely been more favorable, especially at this time of the year. But most of the tonnages are moving at what are commonly said to be unsatisfactory prices. In that connection, however, there is a very general effort to bring about an improvement on supplies that will be wanted for the final quarter of the year. It is early

for much of a test, but in the face of the announcement made early in July that the fourth quarter price of bars, plates and shapes would be 2c., base Pittsburgh, there is some concern over the fact that on a railroad inquiry, 1.90c. was the common quotation and only a few mills placed any limitation upon the date of acceptance of specifications on the order.

It develops that quotations of 3.60c., base, on galvanized sheets on fourth

quarter business are for small lots and that the quotation to jobbers and large consumers is 3.50c. No fourth quarter business of consequence yet has been booked in sheets. Makers of alloy steel bars have advanced the base price from 2.65c. to 2.75c., making no changes in alloy differentials.

Higher prices are being sought by at least one maker of foundry iron as a result of good-sized sales of that grade in the past week, one of which was 16,000 tons. Pig iron sales in general have reached the heaviest total in many weeks, but the business was done at recent prices and the market is firmer only to the extent that producers now are well supplied with business and naturally a little less eager for additional tonnage.

Scrap prices again are headed higher; the short interest in the steel works grades has not been materially reduced and with no let-down in steel works operations or requirements, scrap dealers find it necessary to bid high to cover their sales. The rise from the recent low point in heavy melting steel is \$2 a ton or more, and it is predicted that a further advance will be registered on the railroad scrap to be awarded next week.

**Pig Iron.**—The Valley-Pittsburgh iron market has had the most active

week in several months, with total sales of approximately 50,000 tons, but prices do not appear to have been appreciably strengthened by this large turnover. On the contrary, competition for business was sufficiently active to defeat efforts made by some producers to secure an advance over recent prices and the quotable market is just where it was a week ago. The Standard Sanitary Mfg. Co. figures in the week's business to the extent of 16,000 tons of No. 2 and No. 2X iron for shipment over the next four months to its Pittsburgh and New Brighton, Pa., plants. Most of this was sold at \$16.50, Valley furnace, for both grades, but for a small part of the higher silicon iron \$16.75 was paid. Other sales of foundry iron, including one of 1500 tons to a Greensburg, Pa., melter, and probably reaching a total of more than 5000 tons carried the same prices. Basic iron has figured to an even larger extent in the week's business. The Allegheny Steel Co. was a buyer of 18,000 tons, the Edgewater Steel Co. of 5000 tons and the American Steel Foundries for its Alliance, Ohio, plant of 2000 or 3000 tons. This iron was sold at \$16, Valley furnace, or the equivalent from other points of origin, efforts to obtain more having been unsuccessful. While small lots of Bessemer iron have been sold at \$17.25, Valley furnace, a good deal more has changed hands at the recent quotation of \$17. Several producers now have fair-sized backlogs as a result of the week's business and one merchant producer has announced an advance of 50c. on foundry iron to \$17, Valley furnace, for No. 2 and has renamed the former silicon differentials of 50c. per half point of silicon, quoting No. 2X iron at \$17.50 and No. 1 grade at \$18. This action, however, has not yet been followed by other producers. An inquiry for 4000 tons of malleable iron is reported.

Prices per gross ton, f.o.b. Valley furnace:

Basic .....	\$16.00
Bessemer .....	17.00
Gray forge .....	\$16.25 to 16.50
No. 2 foundry .....	16.50 to 16.75
No. 3 foundry .....	16.25 to 16.50
Malleable .....	17.00
Low phos., copper free....	26.50

Freight rate to Pittsburgh or Cleveland district, \$1.76.

**Ferroalloys.**—Consumers are taking unusually steady shipments against contracts for the various ferroalloys. The occasion does not exist, however, for supplementary tonnages and new business does not amount to much. The Ford Motor Co., recently in the market for 400 tons of 14 to 16 per cent ferrosilicon, is understood to have placed the order with a Western producer.

**Semi-Finished Steel.**—Shipments of billets, slabs and sheet bars on contracts leave little to be desired either from the viewpoint of steadiness or volume. Tin plate demands are somewhat smaller, and some recession of mill operations is likely toward the end of next month, but sheet mill operations remain high. Strip mill engagement also is fairly full. No announcement yet has been made as to fourth quarter prices of billets and slabs, but several makers of sheet bars have announced \$33, f.o.b. Pittsburgh or Youngstown, on sheet bars. There is an impression that delay in naming last quarter prices on billets and slabs is due to a desire to see whether an advance in strips is going to hold, since it has been pretty clearly demonstrated that prices of semi-finished steel cannot be sustained in a tendency contrary to that in the finished products. Producers, having recently formulated chemical extras, which they want to make part of fourth quarter contracts and which weigh a little more heavily upon billets and slabs than upon sheet bars, no doubt also wish to be certain that the new charges are acceptable to non-integrated manufacturers. Wire rods are firmly held at \$42, base, both for current and fourth quarter business.

**Rails and Track Supplies.**—A local mill will furnish the 6000 kegs of spikes recently inquired for by the Norfolk & Western Railroad. Otherwise, business in track supplies is moderate, although there is a fairly steady movement on old orders. Standard-section rails are quiet as usual at this time of the year and demand for light-section rails leaves much to be desired.

**Wire Products.**—August is proving to be a better month in point of sales

than either July this year or August last year. It is said here that most of the low-priced nails and wire shipped earlier in the year have passed into consumption and the competition set up by these tonnages to the efforts of mills to raise prices no longer amounts to much. There are no deviations reported from the July 5 schedule, which has been announced as the one to apply on fourth quarter contracts by several producers. Spring dating terms have been announced on woven wire fence, effective from Sept. 3 in the Southern territory and from Nov. 5 in the North; they call for 2 per cent discount for payment by May 10 in the North and net on July 1, while in the South the terms read net May 1 and 2 per cent discount for cash by March 10, 1929.

★ **Tubular Goods.**—Makers of seamless oil well pipe have enough business to keep productive capacity well engaged over the remainder of the year. There is also a backlog of fairly large proportions in line pipe and a good prospect of additions to the order books. But in other classes of pipe, business leaves something to be desired. There is only a moderately active demand for the butt weld sizes and lap weld pipe still feels the lack of oil well development work in the fields where lap weld pipe will fill the bill. Large lap weld pipe furnaces are running substantially at capacity and that also is the case with seamless pipe mills, but the general average is reduced by the low rate of small pipe mill engagement to about 70 per cent.

**Sheets.**—Specifications against third quarter contracts still are pouring in freely and an interesting feature is that most of them carry rush shipment instructions. It is not clear whether the requirement is urgent or that, because consumers are going along with a minimum stock, they request prompt shipment to be insured of having supplies constantly en route. The American Sheet & Tin Plate Co. last week had only a few tons less in total specifications than in the two previous heaviest weeks of the year. Demands of the automobile industry and the agricultural implement manufacturers are notably heavy. Not much fourth quarter con-

## THE IRON AGE Composite Prices

### Finished Steel

Aug. 28, 1928, 2,348c. a Lb.

One week ago.....	2,348c.
One month ago.....	2,319c.
One year ago.....	2,367c.
10-year pre-war average.....	1,689c.

Based on steel bars, beams, tank plates, wire, rails, black pipe and black sheets. These products constitute 87 per cent of the United States output of finished steel.

	High		Low	
1928	2,364c.,	Feb. 14:	2,314c.,	Jan. 3
1927	2,453c.,	Jan. 4:	2,293c.,	Oct. 25
1926	2,453c.,	Jan. 5:	2,403c.,	May 18
1925	2,560c.,	Jan. 6:	2,396c.,	Aug. 18
1924	2,789c.,	Jan. 15:	2,460c.,	Oct. 14
1923	2,824c.,	Apr. 24:	2,446c.,	Jan. 2

### Pig Iron

Aug. 28, 1928, \$17.34 a Gross Ton

One week ago.....	\$17.04
One month ago.....	17.04
One year ago.....	18.13
10-year pre-war average.....	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

	High		Low	
1928	\$17.75,	Feb. 14:	\$17.04,	July 24
1927	19.71,	Jan. 4:	17.54,	Nov. 1
1926	21.54,	Jan. 5:	19.46,	July 13
1925	22.50,	Jan. 13:	18.96,	July 7
1924	22.88,	Feb. 26:	19.21,	Nov. 3
1923	30.86,	Mar. 20:	20.77,	Nov. 20



# Mill Prices of Finished Iron and Steel Products

## Iron and Steel Bars

Soft Steel	
	Base Per Lb.
F.o.b. Pittsburgh mill.....	1.85c. to 1.90c.
F.o.b. Chicago.....	2.00c.
Del'd Philadelphia.....	2.17c. to 2.22c.
Del'd New York.....	2.19c. to 2.24c.
Del'd Cleveland.....	2.04c. to 2.09c.
F.o.b. Cleveland.....	1.85c.
F.o.b. Lackawanna.....	1.95c. to 2.00c.
F.o.b. Birmingham.....	2.05c.
C.i.f. Pacific ports.....	2.35c.
F.o.b. San Francisco mills.....	2.35c. to 2.40c.

Billet Steel Reinforcing	
F.o.b. Pittsburgh mills.....	1.95c. to 2.00c.
F.o.b. Birmingham.....	2.05c. to 2.15c.

Rail Steel	
F.o.b. mills east of Chicago district.....	1.75c.
F.o.b. Chicago Heights mill.....	1.85c.

Iron	
Common iron f.o.b. Chicago.....	2.00c.
Refined iron, f.o.b. P'gh mills.....	2.75c.
Common iron, del'd Philadelphia.....	2.12c.
Common iron, del'd New York.....	2.14c.

## Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.85c. to 1.90c.
F.o.b. Chicago.....	2.00c.
F.o.b. Birmingham.....	2.05c.
Del'd Cleveland.....	2.04c. to 2.09c.
Del'd Philadelphia.....	2.10c. to 2.15c.
F.o.b. Coatesville.....	2.00c. to 2.05c.
F.o.b. Sparrows Point.....	2.00c.
F.o.b. Lackawanna.....	1.95c. to 2.00c.
Del'd New York.....	2.17½c. to 2.22½c.
C.i.f. Pacific ports.....	2.20c. to 2.30c.

## Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.85c. to 1.90c.
F.o.b. Chicago.....	2.00c.
F.o.b. Birmingham.....	2.05c.
F.o.b. Lackawanna.....	1.95c. to 2.00c.
F.o.b. Bethlehem.....	2.00c. to 2.05c.
Del'd Cleveland.....	2.04c. to 2.09c.
Del'd Philadelphia.....	2.01c. to 2.18c.
Del'd New York.....	2.14½c. to 2.19½c.
C.i.f. Pacific ports.....	2.25c.

## Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
Narrower than 3 in., P'gh.....	2.10c. to 2.20c.
From 3 in. to 6 in., P'gh.....	1.85c. to 2.00c.
6 in. and wider, P'gh.....	*1.75c. to 1.90c.
Narrower than 3 in., Chicago.....	2.30c.
From 3 to 6 in., Chicago.....	2.20c.
6 in. and wider, Chicago.....	2.00c.
Cotton ties, f.o.b. Atlantic and Gulf ports:	
Carload per 45-lb. bundle.....	\$1.27
2000 bundle lots.....	1.25
Larger lots.....	1.23

\*Mills follow plate or sheet prices according to gage on wider than 12 in.

## Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mill.....	2.10c. to 2.20c.
Bars, f.o.b. Chicago.....	2.20c.
Bars, Cleveland.....	2.15c. to 2.25c.
Shafting, ground, f.o.b. mill.....	*2.55c. to 3.50c.
Strips, P'gh.....	2.65c. to 2.85c.
Strips, Cleveland.....	2.65c. to 2.85c.
Strips, del'd Chicago.....	2.95c. to 3.15c.
Strips, Worcester.....	2.90c. to 3.05c.
Fender stock, Pittsburgh.....	4.10c.

\*According to size.

## Wire Products

(To jobbers in car lots, f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails.....	\$2.55
Galvanized nails.....	4.55
Polished staples.....	3.25
Cement coated nails.....	3.00
	2.55

	Base Per 100 Lb.
Bright plain wire, No. 9 gage.....	\$2.40
Annealed fence wire.....	2.55
Spring wire.....	3.40
Galv'd wire, No. 9.....	3.00
Barbed wire, galv'd.....	3.20
Barbed wire, painted.....	2.95
Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester Mass., (wire) mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.	

## Woven Wire Fence

	Base to Retailers Per Net Ton
F.o.b. Pittsburgh.....	\$65.00
F.o.b. Cleveland.....	65.00
F.o.b. Anderson, Ind.....	66.00
F.o.b. Chicago district mills.....	67.00
F.o.b. Duluth.....	68.00
F.o.b. Birmingham.....	68.00

## Sheets

	Base Per Lb.
Nos. 9 and 10, f.o.b. P'gh.....	2.10c. to 2.20c.
Nos. 9 and 10, f.o.b. Chicago dist. mill.....	2.09c. to 2.19c.
Nos. 9 and 10, del'd Cleveland.....	2.32c. to 2.42c.
Nos. 9 and 10, f.o.b. Birmingham.....	2.20c.

Box Annealed, One Pass Cold Rolled	
No. 24, f.o.b. Pittsburgh.....	2.65c. to 2.75c.
No. 24, f.o.b. Chicago dist. mill.....	2.75c. to 2.85c.
No. 24, del'd Cleveland.....	2.74c. to 2.84c.
No. 24, del'd Philadelphia.....	2.97c. to 3.07c.
No. 24, f.o.b. Birmingham.....	2.90c.

Metal Furniture Sheets	
No. 24, f.o.b. Pittsburgh, A grade.....	3.85c. to 3.90c.
No. 24, f.o.b. Pittsburgh, B grade.....	3.65c. to 3.70c.

Galvanized	
No. 24, f.o.b. Pittsburgh.....	3.40c. to 3.60c.
No. 24, f.o.b. Chicago dist. mill.....	3.60c. to 3.70c.
No. 24, del'd Cleveland.....	3.54c. to 3.69c.
No. 24, del'd Philadelphia.....	3.72c. to 3.82c.
No. 24, f.o.b. Birmingham.....	3.65c. to 3.70c.

Tin Mill Black Plate	
No. 28, f.o.b. Pittsburgh.....	2.85c. to 2.90c.
No. 28, f.o.b. Chicago dist. mill.....	3.10c.

Automobile Body Sheets	
No. 20, f.o.b. Pittsburgh.....	4.00c.

Long Ternes	
No. 24, 8-lb. coating, f.o.b. mill primes.....	4.10c.

## Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills.....	\$5.25
Standard cokes, f.o.b. Gary.....	5.35

## Terne Plate

(F.o.b. Morgantown or Pittsburgh)	
(Per Package, 20 x 28 in.)	
8-lb. coating I.C. \$11.20.....	25-lb. coating I.C. \$16.70
15-lb. coating I.C. 14.00.....	30-lb. coating I.C. 17.75
20-lb. coating I.C. 15.30.....	40-lb. coating I.C. 19.85

## Alloy Steel Bars

(F.o.b. maker's mill)	
Alloy Quality Bar Base, 2.75c.	
S.A.E. Series Numbers	Net Price 100 Lb. Bars
2000 (¼% Nickel).....	\$2.90
2100 (1½% Nickel).....	3.20
2300 (3½% Nickel).....	4.15
2500 (5% Nickel).....	4.90
3100 Nickel Chromium.....	3.20
3200 Nickel Chromium.....	3.80
3300 Nickel Chromium.....	5.85
3400 Nickel Chromium.....	3.20
4100 Chromium Molybdenum (0.15 to 0.25 Molybdenum).....	0.50 3.15
4100 Chromium Molybdenum (0.25 to 0.40 Molybdenum).....	0.70 3.35
4600 Nickel Molybdenum (0.20 to 0.30 Molybdenum, 1.25 to 1.75 Nickel).....	1.05 3.70
5100 Chromium Steel (0.60 to 0.90 Chromium).....	0.35 3.00
5100 Chromium Steel (0.80 to 1.10 Chromium).....	0.45 3.10
5100 Chromium Spring Steel.....	0.20 2.85
6100 Chromium Vanadium Bars.....	1.20 3.85
6100 Chromium Vanadium Spring Steel.....	0.95 3.60
9250 Silicon Manganese Spring Steel.....	0.25 2.90
Chromium Nickel Vanadium.....	1.50 4.15
Carbon Vanadium.....	0.95 3.60

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in., the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 down to and including 2½ in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

Slabs with sectional area of 16 in. or over carry the billet price; slabs with sectional area of 12 in. to 16 in. carry a \$5 extra above the billet price and slabs with a sectional area under 12 in. carry the bar price.

Band sizes are 40c. per 100 lb. higher.

## Rails

	Per Gross Ton
Standard, f.o.b. mill.....	\$43.00
Light (from billets), f.o.b. mill.....	36.00
Light (from rail steel), f.o.b. mill.....	34.00
Light (from billets), f.o.b. Ch'go mill.....	36.00

## Track Equipment

	Base Per 100 Lb.
Spikes, ½ in. and larger.....	\$2.80
Spikes, ½ in. and smaller.....	2.80
Spikes, boat and barge.....	3.00
Tie plates, steel.....	2.15
Angle bars.....	2.75
Track bolts, to steam railroads.....	\$3.80 to 4.00
Track bolts, to jobbers, all sizes, per 100 count.....	.70 per cent off list

## Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld	
Inches	Steel Black Galv.
1½.....	45 19½ 1½ to ¾...+11 +39
2.....	51 25½ 1½..... 22 2
3.....	56 42½ 1½..... 28 11
4.....	60 48½ 1 to 1½... 30 13
1 to 3.....	62 50½

Lap Weld	
2.....	55 43½ 2..... 23 7
2½ to 6.....	59 47½ 2½..... 26 11
7 and 8.....	56 43½ 3 to 6..... 28 13
9 and 10.....	54 41½ 7 to 12... 26 11
11 and 12.....	53 40½

Butt Weld, extra strong, plain ends	
1½.....	41 24½ 1½ to ¾...+19 +54
2.....	47 30½ 1½..... 21 17
3.....	53 42½ 1½..... 28 12
4.....	58 47½ 1 to 1½... 30 14
1 to 1½.....	60 49½
2 to 3.....	61 50½

Lap Weld, extra strong, plain ends	
2.....	53 42½ 2..... 23 9
2½ to 4.....	57 46½ 2½ to 4... 29 15
4½ to 6.....	56 45½ 4½ to 6... 28 14
7 to 8.....	52 39½ 7 to 8..... 21 7
9 and 10.....	45 32½ 9 to 12... 16 2
11 and 12.....	44 31½

On carloads the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

## Boiler Tubes

Base Discounts, f.o.b. Pittsburgh	
Lap Welded Steel	Charcoal Iron
2 to 2½ in.....	1½ in. ....+18
2½ to 2¾ in.....	1½ to 1¾ in...+ 8
3 in.....	2 to 2½ in.....— 2
3½ to 3¾ in.....	2½ to 3 in.....— 7
4 to 13 in.....	3½ to 4½ in.....— 9

Beyond the above base discounts, the following extra discounts are given:

Lap Weld Steel	Charcoal Iron
Under 5000 lb..	4 Fives 1 Ten
5000 lb. to 12,000 lb.....	5 Fives 2 Tens
12,000 lb. to 21,000 lb.....	6 Fives 2 Tens & 2½
21,000 lb. and over.....	7 Fives 2 Tens & 5

Standard Commercial Seamless Boiler Tubes

Cold Drawn	
1 in.....	63 3 in. .... 48
1½ to 1¾ in.....	55 3½ to 3¾ in... 50
1¾ in.....	39 4 in. .... 53
2 to 2½ in.....	34 4½, 5 and 6 in.. 45
2½ to 3 in.....	42

Hot Rolled	
2 and 2½ in....	40 3½ to 3¾ in.. 56
2½ and 2¾ in..	48 4 in. .... 59
3 in.....	54 4½, 5 and 6 in.. 48

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

## Seamless Mechanical Tubing

	Per Cent Off List
Carbon, 0.10% to 0.30%, base (carloads).....	55
Carbon, 0.30% to 0.40%, base.....	50
Plus differentials for lengths over 18 ft. and for commercial exact lengths. Warehouse discounts on small lots are less than the above.	

tracting has been done, but on such business makers generally are quoting 2.75c., base Pittsburgh, on black; 3.50c., base, on galvanized; 4c., base, on body sheets; 2c. and 2.10c., base, according to width, on blue annealed, and 2.90c., base, for tin mill black.

**Tin Plate.**—New business is not keeping pace with completed orders and while mill operations are well up to full capacity, some recession is looked for in the next 30 days. This is merely a seasonal condition, as the requirements for packers' cans are usually well supplied by this time.

**Cold-Finished Steel Bars and Shafting.**—Consumers and jobbers are specifying very steadily on third quarter contracts. Not much new business is being done, as requirements are being supplied to a large extent from tonnages under order and it is early for fourth quarter contracting, since the price for that period has not yet been announced. Most shipments are at 2.10c., base, with makers asking 2.20c., base, on new business.

**Hot-Rolled Flats.**—Cooperage stock prices have been somewhat unsettled lately as a result of a cut of \$2 a ton in the Chicago district to 2.40c., base, this resulting in a similar drop to 2.20c., base Pittsburgh. Makers quoting on a Pittsburgh base, however, are again quoting 2.30c., base, and, as it is understood that the Chicago base is to remain at 2.40c., the spread between the two markets becomes \$2 a ton, instead of \$4, as formerly. Makers of strips are quoting 1.90c. for widths of 6 to 12 in., 2c. for 3 in. to less than 6 in., and 2.20c. for less than 3 in. widths on new business for either prompt or fourth quarter shipment. For wide strips the plate or blue annealed sheet bases govern prices, the plate price being taken as 1.90c., base, and the blue annealed sheet base as 2c. These prices are yet to be seriously tested, as new business constitutes

only a small part of the current shipments. Makers still report good specifications on third quarter contracts.

**Cold-Rolled Strips.**—Makers generally have gone along with the plan to substitute 3 tons or more as the base tonnage for 1 to 3 tons, and the common quotation for new business for either prompt or fourth quarter shipment is 2.85c., base Pittsburgh. Lots of 1 to 3 tons now call for an extra charge of 25c. per 100 lb. Consumers are freely releasing tonnages they have under contract, carrying prices of 2.65c. to 2.75c., base, for lots of 3 tons or more.

**Bars, Plates and Shapes.**—Prices named on the recent inquiry of the Pennsylvania Railroad for 25,000 tons of bars, plates and shapes have occasioned considerable discussion, and while manufacturers still insist that the fourth quarter price on these products will be 2c., base Pittsburgh, the fact that the railroad was able to get protection for the remainder of the year at 1.90c. has created the idea among buyers that the latter price is more likely to be the ruling one, with 2c. to be the small-lot figure. Specifications on old orders for bars and shapes still are large and plates also are doing well. Strictly new business still is light, because of the general coverage of buyers for this quarter, while only moderate interest yet is evidenced in fourth quarter requirements until it is seen whether the market is actually going to the announced price for that period.

**Bolts, Nuts and Rivets.**—Production is running close to 60 per cent of capacity. This is an increase of 10 points over the rate of a month ago and in view of close range buying is a fair measure of the increase in demand.

**Coke and Coal.**—Spot supplies of beehive oven furnace coke still are light and the market is firm at \$2.75 per net ton at ovens. Spot foundry coke is plentiful. The coal market presents nothing in the way of new features. Production is still ample for all requirements and there is not much strength to prices.

**Old Material.**—Prices have resumed their upward trend and average 50c. a ton higher than a week ago on the open-hearth grades, the strength of which has had a tendency to lift other grades. Renewed pressure on the part of steel makers for deliveries on orders placed some time ago has forced the dealers to buy, and as much as \$16.50 delivered at one point in the district has been paid for railroad heavy melting steel, while other sales to dealers are noted at from \$15.50 to \$16.25, the destination having much to do with the price. The short interest in heavy steel scrap has not been materially reduced, and, as mill stocks are light, there is rather constant pressure for shipments on contracts. Producers of scrap are impressed by the possibility of even higher prices and are not offering much, while prices are too remunerative east and west of Pittsburgh for much scrap

to come through from those directions. In view of these circumstances, there is more than the usual dependence upon railroad lists, and it is expected that the heavy melting steel in September lists will go at \$16.50 or \$17. There are shortages of scrap in this district and in Youngstown, with both dealers' and consumers' yard piles very low; only an abatement of the pressure for deliveries, it appears, will prevent still higher prices. There are suggestions that the ratio of iron to scrap in the open-hearth charge will be increased, but there are no signs of blast furnace resumption. The September scrap list of the Pennsylvania Railroad contains 41,075 net tons.

*Prices per gross ton delivered consumers' yards in Pittsburgh and points taking the Pittsburgh district freight rate:*

Basic Open-Hearth Grades:	
Heavy melting steel.....	\$15.50 to \$16.50
Scrap rails .....	15.00 to 16.00
Compressed sheet steel....	15.00 to 15.50
Bundled sheets, sides and ends .....	14.00 to 14.50
Cast iron carwheels.....	15.00 to 15.50
Sheet bar crops, ordinary..	16.00 to 16.50
Heavy breakable cast.....	12.25 to 12.75
No. 2 railroad wrought....	16.00 to 16.50
Heavy steel axle turnings..	14.50 to 15.00
Machine shop turnings...	10.00 to 10.50
Acid Open-Hearth Grades:	
Railr. knuckles and couplers	16.50 to 17.00
Railr. coil and leaf springs	16.50 to 17.00
Rolled steel wheels.....	16.50 to 17.00
Low phos. billet and bloom ends .....	19.50 to 20.00
Low phos., mill plates....	18.00 to 18.50
Low phos., light grade....	17.00 to 17.50
Low phos., sheet bar crops.	18.00 to 18.50
Hvy. steel axle turnings..	14.50 to 15.00
Electric Furnace Grades:	
Low phos. punchings.....	16.50 to 17.00
Hvy. steel axle turnings..	14.50 to 15.00
Blast Furnace Grades:	
Short shoveling steel turnings .....	11.00 to 11.50
Short mixed borings and turnings .....	11.00 to 11.50
Cast iron borings .....	11.00 to 11.50
No. 2 busheling.....	10.00 to 10.50
Rolling Mill Grades:	
Steel car axles .....	18.50 to 19.00
No. 1 railroad wrought....	12.00 to 12.50
Sheet bar crops .....	16.50 to 17.00
Cupola Grades:	
No. 1 cast.....	14.75 to 15.25
Rails 3 ft. and under.....	16.50 to 17.00

## Acquire Bridgeport Chain Co.

The Bridgeport Chain Co., Bridgeport, Conn., maker of weldless wire and flat metal chain, upholstery and torsion springs, wire specialties and metal stampings, has been purchased by the Round interests of Cleveland, which also control the Cleveland Chain & Mfg. Co. and David Round & Son, Cleveland, the Krein Chain Co., Wapakoneta, Ohio, and the Seattle Chain & Mfg. Co., Seattle, Wash. The Bridgeport company will be operated in the future under name of the Bridgeport Chain & Mfg. Co., with L. D. Round as president and L. D. Cull, secretary and treasurer. The business will be enlarged by the addition of welded chain of all sizes, chain hoists and tire chains. The upholstery and bed spring business will be continued as a separate business at the same location and all spring business will be transacted from the same office.

## Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Plates .....	3.00c.
Structural shapes.....	3.00c.
Soft steel bars and small shapes...	2.90c.
Reinforcing steel bars.....	2.75c.
Cold-finished and screw stock—	
Rounds and hexagons.....	3.60c.
Squares and flats.....	4.10c.
Bands .....	3.60c.
Hoops .....	4.00c. to 4.50c.
Back sheets (No. 24), 25 or more bundles .....	3.45c.
Galv. sheets (No. 24), 25 or more bundles .....	4.30c.
Blue ann'l'd sheets (No. 10), 1 to 10 sheets .....	3.35c.
Galv. c. -ug. sheets (No. 28), per square .....	\$4.31
Spikes, large .....	3.40c.
Small .....	3.80c. to 5.25c.
Boat .....	3.80c.
Track bolts, all sizes, per 100 count, 60 per cent off list	
Machine bolts, 1" count, 60 per cent off list	
Carriage bolts, 10" count, 60 per cent off list	
Nuts, all styles, 100 count, 60 per cent off list	
Large rivets, base per 100 lb. ....	\$3.50
Wire, black soft ann'l'd, base per 100 lb. ....	\$3.00 to 3.10
Wire, galv. soft, base per 100 lb. ....	3.00 to 3.10
Common wire nails, per keg .....	3.00
Cement coated nails, per keg .....	3.05



# Semi-Finished Steel, Raw Materials, Bolts and Rivets

## Mill Prices of Semi-Finished Steel

### F.o.b. Pittsburgh or Youngstown

Billets and Blooms	
	Per Gross Ton
Rerolling, 4-in. and over.....	\$32.00 to \$33.00
Rerolling, under 4-in. to and including 1½-in. ....	33.00 to 34.00
Forging, ordinary .....	38.00
Forging, guaranteed .....	43.00

Sheet Bars	
	Per Gross Ton
Open-hearth or Bessemer.....	\$32.00

Slabs	
	Per Gross Ton
8 in. x 2 in. and larger.....	\$32.00 to \$33.00
Smaller than 8 in. x 2 in.....	33.00 to 34.00

Skelp	
	Per Lb.
Grooved .....	1.85c. to 1.90c.
Sheared .....	1.85c. to 1.90c.
Universal .....	1.85c. to 1.90c.

Wire Rods	
	Per Gross Ton
*Common soft, base.....	\$42.00
Screw stock .....	\$5.00 per ton over base

\*Chicago mill base is \$43. Cleveland mill base, \$42.

## Prices of Raw Material

Ores	
Lake Superior Ores, Delivered Lower Lake Ports	
	Per Gross Ton
Old range Bessemer, 51.50% iron.....	\$4.55
Old range non-Bessemer, 51.50% iron.....	4.40
Mesabi Bessemer, 51.50% iron.....	4.40
Mesabi non-Bessemer, 51.50% iron.....	4.25
High phosphorus, 51.50% iron.....	4.15
Foreign Ore, c.i.f. Philadelphia or Baltimore	
	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algeria.....	10.00c.
Iron ore, Swedish, average 66% iron, 9.25c. to 9.50c. from the Caucasus.....	39c.
Manganese ore, washed, 52% manganese, from the Caucasus.....	38c. to 39c.
Tungsten ore, high grade, per unit, in 60% concentrates .....	\$10.85 to \$11.00
Chrome ore, 45 to 50% Cr <sub>2</sub> O <sub>3</sub> , crude, c.i.f. Atlantic seaboard .....	
	Per Lb.
Molybdenum ore, 85% concentrates of MoS <sub>2</sub> , delivered .....	50c. to 55c.

Coke	
	Per Net Ton
Furnace, f.o.b. Connellsville prompt .....	\$2.75
Foundry, f.o.b. Connellsville prompt .....	\$3.50 to 4.25
Foundry, by-product, Ch'go ovens.....	8.00
Foundry, by-product, New England, del'd .....	11.00
Foundry, by-product, Newark or Jersey City, delivered.....	9.00 to 9.40
Foundry, Birmingham .....	5.00
Foundry, by-products, St. Louis, f.o.b. ovens .....	8.00
Foundry by-prod., del'd St. Louis..	9.00

Coal	
	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines .....	\$1.40 to \$1.80
Mine run coking coal, f.o.b. W. Pa. mines .....	1.50 to 1.75
Gas coal, ¼-in., f.o.b. Pa. mines..	2.00 to 2.10
Mine run gas coal, f.o.b. Pa. mines ..	1.75 to 1.90
Steam slack, f.o.b. W. Pa. mines....	1.00 to 1.05
Gas slack, f.o.b. W. Pa. mines....	1.15 to 1.20

Ferromanganese	
	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$105.00
Foreign, 80%, Atlantic or Gulf port, duty paid .....	105.00

Spiegeleisen	
	Per Gross Ton Furnace
Domestic, 19 to 21% .....	\$33.00
Domestic, 16 to 19% .....	32.00

Electric Ferrosilicon	
	Per Gross Ton Delivered
50% .....	\$83.50 to \$88.50
75% .....	130.00 to 140.00
Per Gross Ton Furnace	
10% .....	\$35.00
11% .....	37.00
12% .....	\$39.00
14 to 16% .....	45.00

Bessemer Ferrosilicon	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
10% .....	\$30.00
11% .....	32.00
12% .....	\$34.00

Silvery Iron	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
6% .....	\$23.00
7% .....	24.00
8% .....	25.00
9% .....	26.00
10% .....	\$28.00
11% .....	30.00
12% .....	32.00

Other Ferroalloys	
Ferrotungsten, per lb., contained metal, del'd .....	.95c.
Ferrocromium, 4 to 6% carbon and up, 65 to 70% Cr., per lb. contained Cr. delivered, in carloads .....	11.00c.
Ferrovandium, per lb. contained vanadium, f.o.b. furnace .....	\$3.15 to \$3.65
Ferrocobaltititanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per gross ton.....	\$91.00
Ferrophosphorus, electric 24%, f.o.b. Anniston, Ala., per gross ton.....	\$122.50

Fluxes and Refractories	
Fluorspar	
	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$17.00
No. 2 lump, Illinois and Kentucky mines..	\$18.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid.....	\$16.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

Fire Clay	
Per 1000 f.o.b. Works	
	First Quality Second Quality
Pennsylvania ...	\$43.00 to \$46.00 \$35.00 to \$38.00
Maryland .....	43.00 to 46.00 35.00 to 38.00
New Jersey .....	50.00 to 65.00
Ohio .....	43.00 to 46.00 35.00 to 38.00
Kentucky .....	43.00 to 46.00 35.00 to 38.00
Missouri .....	43.00 to 46.00 35.00 to 38.00
Illinois .....	43.00 to 46.00 35.00 to 38.00
Ground fire clay, per ton .....	7.00

Silica Brick	
Per 1000 f.o.b. Works	
Pennsylvania .....	\$43.00
Chicago .....	52.00
Birmingham .....	50.00
Silica clay, per ton.....	\$8.50 to 10.00

Magnesite Brick	
Per Net Ton	
Standard sizes, f.o.b. Baltimore and Chester, Pa. ....	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa. ....	\$40.00
Standard size .....	\$45.00

Chrome Brick	
Per Net Ton	
Standard size .....	\$45.00

## Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts	
Per 100 Pieces	
(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)	
	Per Cent Off List
†Machine bolts .....	70
†Carriage bolts .....	70
Lag bolts .....	70
Plow bolts, Nos. 1, 2, 3 and 7 heads.....	70
Hot-pressed nuts, blank or tapped, square....	70
Hot-pressed nuts, blank or tapped, hexagons..	70
C.p.c. and t. square or hex. nuts, blank or tapped .....	70
Washers*.....	6.75c. to 6.50c. per lb. off list
*F.o.b. Chicago, New York and Pittsburgh.	
†Bolts with rolled thread up to and including ¾ in. x 6 in. take 10 per cent lower list prices.	

Bolts and Nuts	
Per Cent Off List	
Semi-finished hexagon nuts.....	70
Semi-finished hexagon castellated nuts, S.A.E.....	70
Stove bolts in packages, Pittsburgh.....	80, 10 and 2½
Stove bolts in packages, Chicago.....	75, 20, 10 and 5
Stove bolts in bulk, Pittsburgh.....	80, 10 and 5
Stove bolts in bulk, Chicago.....	75, 20, 10, 5 and 2½
Tire bolts .....	60, 5 and 5

Discounts of 70 per cent off on bolts and nuts applied on carload business. For less than carload orders discounts of 55 to 60 per cent apply.

Large Rivets	
(½-In. and Larger)	
	Base Per 100 Lb.
F.o.b. Pittsburgh or Cleveland.....	\$2.90
F.o.b. Chicago .....	3.00

Small Rivets	
(¾-In. and Smaller)	
	Per Cent Off List
F.o.b. Pittsburgh .....	70 and 10
F.o.b. Cleveland .....	70 and 10
F.o.b. Chicago .....	70 and 10

Cap and Set Screws	
(Freight allowed up to but not exceeding 50c. per 100 lb. on lots of 200 lb. or more)	
	Per Cent Off List
Milled cap screws .....	80, 10 and 10
Milled standard set screws, case hardened, .....	80 and 10
Milled headless set screws, cut threads.....	80
Upset hex. head cap screws, U.S.S. thread, .....	85 and 5
Upset hex. cap screws, S.A.E. thread.....	85 and 5
Upset set screws.....	80, 10 and 10
Milled studs .....	70 and 5

# Chicago

## Steel Production Increased Following Liberal Releases Against Contracts—Pig Iron Advanced 50c.

CHICAGO, Aug. 28.—Steel ingot production in the Chicago district has been increased not less than five points, or to 80 per cent of capacity, following more liberal releases by a broad classification of users. The expansion in specifications promises to sustain output at the new rate. August is proving to be an unusually good summer month from the viewpoint of steel shipments and it is not improbable, according to the views of local steel producers, that it will take its place with the previous seven months to make the first eight months of this year equal to or slightly better than previous records. Heavier specifications are affording better rolling schedules, though some complaint still is heard that mill costs are unduly high because of frequent roll changes.

Larger releases are in part accountable to announcements of advances in prices for the fourth quarter and the resultant anxiety of buyers to make full use of present contracts. At the same time, the fact should not be overlooked that industry in general is at a higher pitch. Less resistance is being offered to prices asked for fourth quarter, but considerable opposition has arisen against the change in the rate of discount on sheets and cold-rolled strip.

Outstanding among prospective purchases of reinforcing bars is 12,000 tons for the Apparel Mart, Chicago. The United States Gypsum Co. has placed an order for 600 tons of rail steel reinforcing bars for a new plant at East Chicago, Ind.

**Pig Iron.**—Pig iron sales in this district have topped 60,000 tons in the last week. The bulk of this tonnage was placed early last week prior to the announcement by local producers of a 50c. advance in prices for Northern foundry iron. Following three weeks of heavy purchases, it is evident that melters are well covered for the next four months but the increase in melt leads producers to believe that users have estimated requirements too closely. A Federal furnace, ready for blowing, probably will be lighted within the next two weeks. In some quarters the thought is expressed that part of the recent buying was speculative, but this is discounted somewhat by the fact that melters generally report business much improved, this being particularly true of the malleable foundries, and pressure for prompt and increased shipments is insistent.

### Prices per gross ton at Chicago:

N'th'n No. 2 fdy., sil. 1.75 to 2.25...	\$18.00
N'th'n No. 1 fdy., sil. 2.25 to 2.75...	18.50
Malleable, not over 2.25 sil. ....	18.00
High phosphorus .....	18.00
Lake Super. charcoal, sil. 1.50....	27.04
So'th'n No. 2 fdy. (all rail).....	22.26
So'th'n No. 2 (barge and rail)....	21.76
Low phos., sil. 1 to 2, copper free .....	\$28.50 to 29.00
Silvery, sil. 8 per cent.....	29.79
Bess. ferrosilicon, 14-15%.....	46.79

Prices are delivered consumers' yards except on Northern foundry, high phosphorus and malleable, which are f.o.b. local furnace, not including an average switching charge of 61c. per gross ton.

**Ferroalloys.**—Shipments of 50 per cent ferrosilicon to users in this district are measurably heavier than those of a year ago. The last of a cargo of foreign spiegeleisen has been

closed out at \$32, Hazard, Pa., and it is understood that only the domestic commodity is now available.

*Prices delivered Chicago:* 80 per cent ferromanganese, \$112.56; 50 per cent ferrosilicon, \$83.50 to \$87.50; spiegeleisen, 19 to 21 per cent, \$40.76.

**Plates.**—Oil storage tank orders this week call for 5500 tons of plates, of which 3500 tons will be fabricated and erected in the Southwest. Efforts to control petroleum output in several of the Western States are becoming more effective, but to date this move has had little or no influence on the requirements of storage capacity, largely because much of the new construction is taking place in recently developed fields. The report here last week that the Texas & Pacific had closed in the East for 3000 tons of tankage material appears to have been an error, for it is now asserted that the United Iron Works, Kansas City, Mo., is low bidder on this tonnage. It is understood here that the water pipe project in Denver, Colo., calling for 12,000 tons of steel, will soon come up for figures. The railroad equipment market remains for the second week moderately active in small orders. The North American Car Co. has ordered 100 underframes and the Barrett Co. has purchased 10 tank cars. The American Car & Foundry Co. has taken an order for 10 hopper cars from the Wabash. The Sanitary District of Chicago has rejected all bids on 54 air dump cars and has issued new inquiries for 16 30-yd. cars and 4 of 20 cu. yd. capacity. Chicago prices for plates are steady at 2c. on the general run of business. On specific orders of attractive tonnage, especially when competition among fabricators is keen, 1.90c. is being done. Mill books are open at 2.10c. for tonnages that are to be delivered after Sept. 30.

*Mill prices on plates, per lb.: 2c. base Chicago.*

**Structural Material.**—Preliminary estimates of the steel that will be needed for the Apparel Mart, Chicago, place the tonnage at 74,000 tons. It is now planned that construction on this structure is to be begun about Feb. 1, 1929. Taking the above tonnage into consideration and projects that are actively before the local trade, there is not less than 150,000 tons which is reasonably assured for Chicago and Milwaukee shops by Jan.

1. Awards during the week totaled 6000 tons, including 3000 tons for lock gates for the Illinois Waterway Commission. Noteworthy among fresh inquiries is 1900 tons for a new mill building for the Interstate Iron & Steel Co., Chicago. Shops in Chicago are well supplied with work for the next four to six weeks, but output schedules are overbalanced on the side of heavy tonnage orders. Evidence is at hand that prices asked by fabricators for large jobs have stiffened and are holding in the face of strong opposition by architects and contractors. The desire to round out shop operations by booking small tonnages is holding prices low on that kind of work. Specifications to mills for structural materials are heavier as buyers watch the tendency in fourth quarter prices and show greater anxiety to take their full contract obligations for delivery before Sept. 30.

*Mill prices on plain material, per lb.: 2c. base, Chicago.*

**Bars.**—Shipments of mild steel bars in August are running well ahead of July and the outlook is that deliveries will be heavier as users issue larger specifications in order to complete third quarter contracts. Reports that the automobile industry is slowing down are not substantiated by orders to local mills. Several new models are still to come out and from those plants orders are running lighter, but in other directions specifications are larger and net result is that from the viewpoint of Chicago producers there is little or no variation in the total output by the automobile industry. Deliveries of bars range from two to five weeks, the more extended time being necessary on a number of the special sizes called for by forgers and automobile parts manufacturers. Several scattered sales are reported at 2.10c. per lb., Chicago, for delivery in the fourth quarter. The iron bar market is quiet. Alloy bar mill schedules are well maintained by a steady flow of orders for practically all classes of users. Orders for fence posts made from hard steel bars have come in more freely and local mills have had to extend hours of operation in order to hold production at a point where stock can be accumulated against the fall demand. Users of rail steel bars are running with minimum stocks and are demanding prompt delivery. Mills are promising shipments in three to four weeks.

*Mill prices per lb.: Soft steel bars, 2c. base, Chicago; common bar iron, 2c. base, Chicago; rail steel bars, 1.85c. base, Chicago Heights mill.*

**Sheets.**—New orders and specifications continue to grow and rolling schedules are now made up for 10 days to two weeks in contrast with four to six days earlier in the month. Price advances announced for fourth quarter appear not to be of as much concern to buyers as is the change in the rate of discount. Little interest has developed on fourth quarter contracts. Specifications from the roofing trade are large, but manufactur-



ers of light tanks are taking smaller quantities of sheets.

**Base prices per lb., deliv'd from mill in Chicago:** No. 24 black sheets, 2.80c. to 2.90c.; No. 24 galv., 3.65c. to 3.75c.; No. 10 blue ann'd, 2.15c. to 2.25c. Deliv'd prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than Ch'go deliv'd prices.

**Rails and Track Supplies.**—The Chesapeake & Ohio is in the market for 45,500 tons of standard-section rails, 9000 tons of tie plates and 5000 tons of angle bars. It is estimated here that not less than 30,000 tons of this rail business will be placed with Western mills. Three Western railroads have ordered a total of 4000 tons of rails for immediate delivery. Output of rails is steady, but production of accessories is variable because of the character of orders. The light rail market is dull.

**Prices f.o.b. mill, per gross ton:** Standard-section open-hearth and Bess. rails, \$43; light rails, rolled from billets, \$36. **Per lb.:** Standard railroad spikes, 2.80c.; track bolts with square nuts, 3.80c.; steel tie plates, 2.15c.; angle bars, 2.75c.

**Cast Iron Pipe.**—Chicago is reported as having closed for 1920 tons of 8 and 12-in. Class B pipe at \$33.70, Birmingham, or \$41.90, delivered. The American Cast Iron Pipe Co. has taken 350 tons for Barton, Wis., and 150 tons for Kewaskum, Wis. The E. A. Meyer Construction Co. will lay 500 tons of pipe at Highland Park, Ill., and R. J. Wilson & Co., Appleton, Wis., will supply 300 tons for Winfield, Ill. Lombard and Evanston, both in Illinois, have placed orders in the last week. Several railroads are figuring on fair tonnages through manufacturers of water treating plants.

**Prices per net ton, deliv'd Chicago:** Water pipe, 6-in. and over, \$42.20 to \$43.20; 4-in., \$46.20 to \$47.20; Class A and gas pipe, \$4 extra.

**Wire Products.**—Output of wire and wire products has again been speeded up and now stands at close to 65 per cent of mill capacity. With the harvest season well advanced, there comes a larger demand from farm communities and jobbers are ordering more freely. Stocks in the hands of distributors are low and, judging by the character of purchases, they intend keeping them in that condition

for the time being. More active country trade matches closely with the rate of increase at mills and producers' stocks are not growing as the first impulse of the fall trade is being felt. Mill books will be opened for fourth quarter business about Sept. 1. Prices for wire and wire products are given on page 537.

**Old Material.**—Prices in this market remain strong and sales, especially in specialties, are fairly numerous. Small users are more active and are insistent on prompt delivery for immediate use. Shipments of cast iron borings are moderately heavy, but brokers are short and are bidding high for carload lots. An industrial plant has sold 700 tons of this grade. The sustained rate of industrial activity through the summer months has held a check on the accumulation of scrap and this situation, dealers believe, points to higher prices in the early fall. On the other hand, some resistance to prices has developed among the large buyers. The Chicago, Milwaukee, St. Paul & Pacific will sell 5000 tons and the Burlington is offering 3000 tons.

**Prices deliv'd Chicago district consumers:**

Per Gross Ton	
Basic Open-Hearth Grades:	
Heavy melting steel.....	\$12.75 to \$13.25
Shoveling steel.....	12.75 to 13.25
Frogs, switches and guards, cut apart, and misc. rails	14.00 to 14.50
Hydral. compressed sheets	11.25 to 11.75
Drop forge flashings.....	9.50 to 10.00
Forg'd. cast and r'd steel carwheels.....	16.00 to 16.50
Rail'd tires, charg. box size.....	16.00 to 16.50
Rail'd leaf spring cut apart.....	16.00 to 16.50
Acid Open-Hearth Grades:	
Steel couplers and knuckles	14.25 to 14.75
Coil springs.....	16.50 to 17.00
Electric Furnace Grades:	
Axle turnings.....	12.75 to 13.25
Low phos. punchings.....	14.50 to 15.00
Low phos. plate, 12 in. and under.....	14.50 to 15.00
Blast Furnace Grades:	
Axle turnings.....	9.75 to 10.25
Cast iron borings.....	9.50 to 10.00
Short shoveling turnings..	9.50 to 10.00
Machine shop turnings.....	6.75 to 7.25
Rolling Mill Grades:	
Iron rails.....	14.00 to 14.50
Rerolling rails.....	15.50 to 16.00
Cupola Grades:	
Steel rails less than 3 ft..	16.00 to 16.50
Angle bars, steel.....	15.50 to 16.00
Cast iron carwheels.....	12.75 to 13.00
Malleable Grades:	
Railroad.....	13.00 to 13.50
Agricultural.....	11.50 to 12.00
Miscellaneous:	
*Relaying rails, 56 to 60 lb.	23.00 to 25.00
*Relaying rails, 65 lb. and heav. ....	26.00 to 31.00

#### Warehouse Prices, f.o.b. Chicago

Base per Lb.	
Plates and structural shapes.....	3.10c.
Soft steel bars.....	3.00c.
Reinforc'g bars, billet steel.....	2.20c. to 2.80c.
Reinforc'g bars, rail steel.....	2.00c. to 2.70c.
Cold-fin. steel bars and shafting—	
Rounds and hexagons.....	3.60c.
Flats and squares.....	4.10c.
Bands.....	3.65c.
Hoops.....	4.15c.
Black sheets (No. 24).....	3.80c.
Galv. sheets (No. 24).....	4.65c.
Blue ann'd sheets (No. 10).....	3.35c.
Spikes, stand. railroad.....	3.55c.
Track bolts.....	4.55c.
Rivets, structural.....	3.60c.
Rivets, boiler.....	3.60c.
Per Cent Off List	
Machine bolts.....	60
Carriage bolts.....	60
Coach or lag screws.....	60
Hot-pressed nuts, sq. tap. or blank..	60
Hot-pressed nuts, hex., tap. or blank..	60
No. 8 black ann'd wire, per 100 lb.....	\$3.30
Com. wire nails, base per keg.....	3.10
Cement c'd nails, base per keg.....	3.10

Per Net Ton	
Rolling Mill Grades:	
Iron angles and splice bars	13.50 to 14.00
Iron arch bars and transoms.....	20.00 to 20.50
Iron car axles.....	24.00 to 24.50
Steel car axles.....	15.75 to 16.25
No. 1 railroad wrought.....	11.25 to 11.75
No. 2 railroad wrought.....	11.50 to 12.00
No. 1 busheling.....	10.00 to 10.50
No. 2 busheling.....	5.75 to 6.25
Locomotive tires, smooth..	12.00 to 12.50
Pipes and flues.....	8.00 to 8.50
Cupola Grades:	
No. 1 machinery cast.....	14.25 to 14.75
No. 1 railroad cast.....	13.25 to 13.75
No. 1 agricultural cast.....	12.75 to 13.25
Stove plate.....	10.75 to 11.25
Grate bars.....	12.00 to 12.50
Brake shoes.....	10.00 to 10.50

\*Relaying rails, including angle bars to match, are quoted f.o.b. dealers' yards.

**Reinforcing Bars.**—Greater anxiety to share in going business has definitely lowered Chicago warehouse

prices for billet steel reinforcing bars to 2.20c. a lb. for large tonnages. In a few cases even this price has been shaded in recent quotations. The rail steel commodity remains steady at 2c. a lb. for large orders. Although there still is the promise of active new projects, they are slow in developing. Shops are beginning to feel the effect of this, for they are rapidly completing the large contracts on their books and cannot fill in with current small orders. Cook County, Ill., has placed contracts calling for 850 tons of rail steel bars for highway work.

**Cold-Rolled Strip.**—Producers announce 2.85c. per lb., Cleveland, or 3.15c., delivered Chicago, as the new base price on orders of 6000 lb. and over. The old discounts have given way to extras, which are added for items under 3 tons. Producers are engaged at 75 per cent of capacity.

**Bolts, Nuts and Rivets.**—Unsteadiness is noticed in prices for large rivets, especially when used for tank construction work in the Southwest. Oil storage tanks contracted for this week call for 500 tons of large rivets. Specifications for bolts, nuts and rivets are steady. Sellers are preparing to submit fourth quarter contracts at prices which it is now said will be unchanged.

**Coke.**—Shipments of by-product foundry coke are measurably heavier as the melt in this district grows. Prices are steady at \$8, f.o.b. local ovens.

### New Sheet Discount Protested

The reduction of the cash discount on sheets and cold-rolled strip from 2 per cent to one-half of 1 per cent, which will be put into effect by virtually all mills on Oct. 1, has brought out protests on the part of some buyers both among jobbers and manufacturing consumers.

In a letter addressed to one of its main sources of supply for steel the Columbian Steel Tank Co., Kansas City, Mo., says in part:

It goes without saying that your ruling will work a hardship on the sheet metal fabricators who pay their bills promptly, to an extent that you may or may not ever learn about, as they cannot so quickly, or will not, change their policy as you did.

We feel hurt! Is there not some other recourse? Why not adopt a better policy: As one of the leaders, figure costs and base your selling price on the results obtained. No fabricator objects to mills making a profit. However, we do object to being classed with the slow-pay fabricator who knows nothing about discounts, and cares less.

One objection raised to the reduction in discount is that it will tend to delay invoice payments and thus make it necessary for the mills to employ more capital. The banks, it is argued, are quite willing to loan money to buyers for the purpose of discounting their bills when the discount is 2 per cent, but they are not likely to be so accommodating if the saving is only one-half of 1 per cent.

# Philadelphia

## Some Buyers Considering Last Quarter Needs—Specifications Good and Mills Well Occupied

PHILADELPHIA, Aug. 28.—For the first time in many months, deliveries are extended slightly on some products, particularly sheets and plates. This has apparently resulted from the unexpected flow of specifications against current contracts, for which mills, operating at a moderate rate, were not entirely prepared. Small orders for prompt shipment are not receiving the early action that has been usual for some months past. New buying is small, except for some contracts on blue annealed sheets by consumers and distributors who, desirous of taking final advantage of the 2 per cent discount for cash in 10 days, effective until Oct. 1, are placing at least part of their fourth quarter requirements and specifying for delivery in September. There is a moderate volume of pig iron inquiry and some small users of foundry iron, who have been buying carload lots as needed, have recently been asking if the present base price would apply on 100 tons or more to be delivered in the next quarter. Iron and steel scrap prices are still moving upward, although much of the present activity is the result of dealers seeking to cover lower priced contracts.

**Pig Iron.**—A return to \$20 per ton, base, on foundry grade, the eastern Pennsylvania quotation until several weeks ago, is being considered and some buyers of small lots are showing a willingness to contract for 100 tons or more for delivery in the next quarter. The Coatesville Boiler Works, Coatesville, Pa., has closed on 100 tons of foundry grade with an eastern Pennsylvania merchant furnace. A consumer of basic is in the market for its usual requirements, probably 6000 to 7000 tons, and is understood to have rejected a quotation of \$19, delivered, as too high. The Virginia pig iron producer has sold 10,000 tons of foundry iron to a Virginia cast iron pipe foundry, and is reported to have met the competition of Birmingham furnaces, which had not then advanced their prices. Low phosphorus is in fair demand and prices are firm.

### Prices per gross ton at Philadelphia:

East. Pa. No. 2, 1.75 to 2.25 sil.	\$20.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	20.76
East. Pa. No. 1X.	21.26
Basic (del'd east. Pa.)	\$18.75 to 19.25
Gray forge	19.75 to 20.25
Malleable	21.00 to 21.50
Stand. low phos. (f.o.b. N. Y. State furnace)	22.00 to 23.00
Cop. b'r'g low phos. (f.o.b. furnace)	23.00 to 23.50
Va. No. 2 plain, 1.75 to 2.25 sil.	24.04 to 24.54
Va. No. 2X, 2.25 to 2.75 sil.	24.54 to 25.04

Prices, except as specified otherwise, are deliv'd Philadelphia. Freight rates: 76c. to \$1.64 from eastern Pennsylvania furnaces; \$4.54 from Virginia furnaces.

**Ferromanganese.**—Consumers are taking their full contract shipments, but not much additional tonnage has appeared. The quotation continues at \$105, seaboard.

**Bars.**—A leading producer reports that business in this product for the first seven months of the year was more than 20 per cent greater than in the same period of 1927 and the volume of specifications is continuing at a good rate. Prices are unchanged at 1.85c. to 1.90c. per lb., Pittsburgh, or 2.17c. to 2.22c., Philadelphia, for current delivery. On contracts for the last quarter 1.90c., Pittsburgh, appears as the possible price, although 2c., Pittsburgh, or 2.32c., Philadelphia, is still discussed.

**Plates.**—Small orders for prompt

shipment are beginning to be delayed and consumers in some cases are pressing for deliveries. The Virginia Bridge & Iron Co., Roanoke, Va., has closed on 5000 to 6000 tons of plates with a Pennsylvania mill, and the Chesapeake & Ohio has purchased about 9000 tons of plates, which also went to a mill in this district. Prices continue at 2c. to 2.05c., Coatesville, or 2.10c. to 2.15c., delivered Philadelphia; 2.05c., Coatesville, appears as the probable fourth quarter contract price, although in some quarters 2.15c., Coatesville, is suggested.

**Shapes.**—Fabricating shops are well filled with tonnage, but fabricated steel prices show no tendency to advance. One fabricator is booked with sufficient bridge tonnage for the remainder of the year and another shop has orders for delivery over the next seven months. Shape prices are slightly stronger at 2.05c., Pencoyd, or 2.11c., Philadelphia, but 1.95c., Pencoyd, or 2.01c., Philadelphia, has not entirely disappeared.

**Sheets.**—To secure the last possible advantage from the 2 per cent discount for cash in 10 days, effective only until Oct. 1, buyers are in some cases contracting for all or part of their last quarter requirements of blue annealed sheets and automobile body

sheets, specifying for delivery in September. One maker of highly finished sheets is not yet reported to have announced its intention of reducing the cash discount to one-half of 1 per cent on Oct. 1. Mills are beginning to extend deliveries slightly and show no inclination to recede from their announced intention of contracting for fourth quarter at 2c. to 2.10c., Pittsburgh, for blue annealed; 2.75c., Pittsburgh, for black, and 3.50c. to 3.60c., Pittsburgh, for galvanized, which is an advance from present prices on black and galvanized of \$2 a ton.

**Warehouse Business.**—Orders for delivery from stock are small and August is not expected to be as good a month as July. With mills in a stronger position, jobbers expect improvement in September.

**Imports.**—In the week ended Aug. 25, 400 tons of pig iron arrived from Sweden. Ore imports were 7600 tons of iron ore from Algeria and 298 tons from Spain and 2000 tons of manganese ore and 1500 tons of chrome ore from India. Steel arrivals consisted of 635 tons of structural shapes and 67 tons of steel bars from Belgium, 611 tons of skelp and 94 tons of steel plates from France, 228 tons of bars from Sweden, 28 tons of skelp and 4 tons of steel scrap from the United Kingdom and 54 tons of steel ingots from Germany.

**Old Material.**—Consumer buying of iron and steel scrap has not yet been heavy in eastern Pennsylvania, but the market is beginning to develop a strong upward movement, reflecting the strength of the Pittsburgh district, and dealers are covering on old contracts at continually advancing prices. Bundled sheets and cast borings have been bought at \$11 per ton, delivered Harrisburg, Pa., and shafting at \$17.50 per ton, delivered. Stove plate is quotable at \$11.50 to \$12 per ton, a Harrisburg consumer having offered \$12 per ton, delivered, and obtained only a small tonnage at this price. No. 1 heavy melting steel is unchanged at \$13 per ton and most of the eastern Pennsylvania consumers are apparently well covered for the present.

### Prices per gross ton delivered consumers' yards, Philadelphia district:

No. 1 heavy melting steel.	\$13.00
Scrap T rails	12.50
No. 2 heavy melting steel.	\$11.00 to 11.50
No. 1 railroad wrought.	13.50 to 14.50
Bundled sheets (for steel works)	10.50 to 11.00
Machine shop turnings (for steel works)	10.50
Heavy axle turnings (or equiv.)	12.00 to 13.00
Cast borings (for steel works and roll. mill)	10.50 to 11.00
Heavy breakable cast (for steel works)	15.00 to 15.50
Railroad grate bars	11.50 to 12.00
Stove plate (for steel works)	11.50 to 12.00
No. 1 low phos., hvy., 0.04% and under	17.50 to 18.00
Couplers and knuckles	14.50 to 15.00
Roller steel wheels	14.50 to 15.00
No. 1 blast f'nace scrap	9.50 to 10.00
Wrot. iron and soft steel pipes and tubes (new specific)	13.00
Shafting	17.00 to 17.50
Steel axles	19.00 to 20.00
No. 1 forge fire	11.00 to 11.50
Cast iron carwheels	15.50 to 15.75
No. 1 cast	15.50 to 16.00
Cast borings (for chem. plant)	14.50 to 15.00
Steel rails for rolling	14.50 to 15.00

### Warehouse Prices, f.o.b. Philadelphia

Plates, 1/4-in. and heavier	2.50c. to 2.60c.
Plates, 3/4-in.	2.80c. to 3.00c.
Structural shapes	2.40c. to 2.60c.
Soft steel bars, small shapes, iron bars (except bands)	2.70c.
Round-edge iron	3.50c.
Round-edge steel, iron finished 1 1/2 x 1 1/2 in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforc. steel bars, sq. twisted and deform.	2.50c. to 3.00c.
Cold-fin. steel, rounds and hex.	3.35c.
Cold-fin. steel, sq. and flats	3.85c.
Steel hoops	3.50c.
Steel bands, No. 12 to 1/8-in., inclus.	3.25c.
Spring steel	5.00c.
*Black sheets (No. 24)	3.85c.
†Galvanized sheets (No. 24)	4.60c.
Blue ann'd sheets (No. 10)	3.15c.
Diam. pat. floor plates—	
1/4-in.	5.30c.
3/4-in.	5.50c.
Rolls	3.20c.
Swedish iron bars	6.60c.

\*For 50 bundles or more; 10 to 49 bun., 4.10c. base; 1 to 9 bun., 4.35c. base.

†For 50 bundles or more; 10 to 49 bun., 4.95c. base; 1 to 9 bun., 5.30c. base.



# New York

## Large Plate Orders Taken by Eastern Mills— Pig Iron Prices Higher

NEW YORK, Aug. 28.—With continued good demand, pig iron prices are gaining in strength. Buffalo foundry iron has been advanced to a minimum of \$16.50, base furnace, and one producer is asking \$17, while a third has raised its quotation to \$17.50. The trend is indicated by the fact that some orders have been booked at \$17, base Buffalo. Prices of other domestic irons are also stiffening. Sales in this district during the week totaled 17,000 tons. The General Electric Co. closed for about 5000 tons for various plants and there were several large New England sales, but in this territory bookings were predominantly in small lots. For one selling house, which disposed of over 4000 tons, the largest individual order was 400 tons. Although a good share of current business calls for prompt shipment, an increasing number of smaller foundries are asking for fourth quarter contracts. In addition, there are several large new inquiries for foundry iron for the last quarter—one for 6000 tons, a second for 2500 tons and a third for 2000 tons. The New York Air Brake Co. has closed against its inquiry for 200 tons of low phosphorus for Watertown, N. Y. It is becoming increasingly difficult to purchase iron for water delivery. Some furnaces are from 10 days to a month behind on barge shipments. The scarcity of barges resulting from the heavy wheat movement is still acute.

Prices per gross ton, delivered New York district:  
Buffalo No. 2 fdy., sil. 1.75 to 2.25 .....\$21.41 to \$21.91  
\*Buf. No. 2, del'd east. N. J. 19.78 to 20.28  
No. 2, del'd east. N. J. tidewater ..... 19.01 to 19.51  
East Pa. No. 2 fdy., sil. 1.75 to 2.25 ..... 20.39 to 21.52  
East Pa. No. 2X fdy., sil. 2.25 to 2.75 ..... 20.89 to 22.02  
East Pa. No. 1X fdy., sil. 2.75 to 3.25 ..... 21.39 to 22.52

Freight rates: \$4.91 from Buffalo, \$1.39 to \$2.52 from eastern Pennsylvania.  
\*Price delivered to New Jersey cities having rate of \$3.28 a ton from Buffalo.

**Plates, Shapes and Bars.**—Eastern mills have booked a large tonnage of plates in the past week or 10 days. The Chesapeake & Ohio Railroad has ordered 9000 tons of plates from one mill, while another mill has booked an order from a Virginia structural fabricator for 6000 tons. The Standard Oil Co. of New Jersey has bought about 1000 tons, of which 400 tons was wide, still-bottom steel for tanks. The Todd shipyard is in the market for 250 tons of plates. Most of the large business placed went at less than prevailing market prices. About 2000 tons or more of plates will be needed by the American Locomotive Co. for 55 locomotives ordered by the New York Central. August specifications against contracts for plates, shapes and bars have been heavier than those of July. Next week most

of the mills will impress upon contract customers the necessity of getting in the balance of third quarter specifications by Sept. 10. Some mills are informing their customers that all tonnage not specified by that date will

### Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes.....	3.30c.
Soft steel bars, small shapes.....	3.25c.
Iron bars.....	3.24c.
Iron bars, Swed. charcoal.....	7.00c. to 7.25c.
Cold-fin. shafting and screw stock—	
Rounds and hexagons.....	3.40c.
Flats and squares.....	3.90c.
Cold-roll. strip, soft and quarter	
hard.....	5.15c. to 5.40c.
Hoops.....	4.50c.
Bands.....	4.00c.
Blue ann'd sheets (No. 10).....	3.85c. to 3.90c.
Long terme sheets (No. 24).....	5.60c. to 5.80c.
Standard tool steel.....	12.00c.
Wire, black annealed.....	4.50c.
Wire, galv. annealed.....	5.15c.
Tire steel, 1½ x ½ in. and larger.....	3.30c.
Smooth finish, 1 to 2½ x ½ in.	
and larger.....	3.65c.
Open-hearth spring steel, bases,	
4.50c. to 7.00c.	
Machine bolts, cut thread:	Per Cent
¾ x 6 in. and smaller.....	Off List
1 x 30 in. and smaller.....	50 to 50 and 10
Carriage bolts, cut thread:	
¾ x 6 in. and smaller.....	60
¾ x 20 in. and smaller.....	50 to 50 and 10
Coach screws:	
¾ x 6 in. and smaller.....	60
1 x 16 in. and smaller.....	50 to 50 and 10
Boiler Tubes—	Per 100 Ft.
Lap welded, 2-in.....	\$17.33
Seamless steel, 2-in.....	20.24
Charcoal iron, 2-in.....	25.00
Charcoal iron, 4-in.....	67.00

Discount on Welded Pipe		
Standard Steel—	Black	Galv.
½-in. butt.....	46	29
¾-in. butt.....	51	37
1-3-in. butt.....	53	39
2½-6-in. lap.....	48	35
7 and 8-in. lap.....	44	17
11 and 12-in. lap.....	37	12

Wrought Iron—		
½-in. butt.....	5	+19
¾-in. butt.....	11	+9
1-1½-in. butt.....	14	+6
2-in. lap.....	5	+14
3-6-in. lap.....	11	+6
7-12-in. lap.....	3	+16

Tin Plate (14 x 20 in.)		
	Prime	Seconds
Coke, 100 lb. base box...	\$6.45	\$6.20
Charcoal, per Box—		
IC.....	\$9.70	\$12.10
IX.....	12.00	14.25
IXX.....	13.90	16.00

Terne Plate (14 x 20 in.)		
IC—20-lb. coating.....	\$10.00 to \$11.00	
IC—30-lb. coating.....	12.00 to 13.00	
IC—40-lb. coating.....	13.75 to 14.25	

Sheets, Box Annealed—Black, C. R.		
One Pass		
	Per Lb.	
Nos. 18 to 20.....	3.60c. to 3.80c.	
No. 22.....	3.75c. to 3.95c.	
No. 24.....	3.80c. to 4.00c.	
No. 26.....	3.90c. to 4.10c.	
No. 28*	4.05c. to 4.25c.	
No. 30.....	4.30c. to 4.50c.	

Sheets, Galvanized		
	Per Lb.	
No. 14.....	4.15c. to 4.35c.	
No. 16.....	4.00c. to 4.20c.	
No. 18.....	4.15c. to 4.35c.	
No. 20.....	4.30c. to 4.50c.	
No. 22.....	4.35c. to 4.55c.	
No. 24.....	4.50c. to 4.70c.	
No. 26.....	4.75c. to 4.95c.	
No. 28*	5.00c. to 5.20c.	
No. 30.....	5.40c. to 5.60c.	

\*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

be cancelled. Instructions have been given to sales offices of nearly all steel companies that fourth quarter contracts will contain a clause providing for complete specifications by Dec. 10. One or two companies have definitely announced a \$2 advance on fourth quarter contracts, but in a majority of cases no announcements whatever have been made. Buyers have shown little interest in their requirements for that period.

Mill prices per lb., deliv'd New York: Soft steel bars, 2.19c. to 2.24c.; plates, 2.12½c. to 2.22½c.; struct. shapes, 2.14½c. to 2.19½c.; bar iron, 2.14c.

**Wire Products.**—Some of the leading makers of wire products have announced that present prices will be continued for the fourth quarter. One large producer will open its books on Sept. 1 for contracting.

**Strip Steel.**—Local sales offices of companies making cold-rolled strip steel have received announcements of a change in quoting prices, wherein the base price will apply on more than 3 tons, with extras for small lots. The price announced is 2.85c., Pittsburgh or Cleveland.

**Sheets.**—Orders and specifications for sheets are in increasing volume. Some consumers who did not contract for this quarter are taking advantage of the opportunity to make contracts at present prices on which specifications will be accepted until Sept. 10. Some mills have definitely turned down requests for October shipment against third quarter specifications. It is likely that considerable tonnage will be carried over to that month, but shipment will be at mill convenience rather than at buyer's dictation. Tonnage specified for shipment in September, but which in some cases may not leave the mills until after Oct. 1, will take the 2 per cent discount for cash in 10 days, but otherwise the new discount of one-half of 1 per cent will apply.

**Reinforcing Bars.**—Joseph T. Ryerson & Son, Inc., will furnish 700 tons of bars for two plant buildings for the Western Electric Co., Inc., at Kearny, N. J., and the Jones & Laughlin Steel Corporation is expected to supply a similar tonnage for foundation work on the Western Union Building in New York. Excepting these two jobs, the week's awards have been light, but there is enough pending work to assure considerable activity during September. Prices are unchanged.

**Warehouse Business.**—Possibly as a reflection of the better position of mills, jobbers are beginning to receive slightly larger orders and inquiries, principally for sheets and structural material. The past week has been considerably better than the earlier weeks of the month and quotations on all products are apparently quite firm.

**Cast Iron Pipe.**—Southern makers continue to quote on a basis of \$34 to \$35 per ton, Birmingham, which is too high to compete with foundries in the North. Northern producers are endeavoring to maintain the market at about \$37.60 per net ton, de-

livered, New York, but sales have been made down to \$35.60 per net ton, delivered. Buying is in most cases limited to small lots, orders for car-load lots and less being rather numerous. The Department of Water Supply, Gas and Electricity, New York, opens contractors' bids Aug. 31 and Sept. 6, on several hundred tons of water pipe for the boroughs of Queens and the Bronx. The lowest bid for a contract to lay 525 tons of water pipe at Amagansett, N. Y., was submitted by the W. G. Fritz Co., West Orange, N. J., and it is reported that centrifugally cast pipe will be used.

*Prices per net ton, deliv'd New York:*  
Water pipe 6-in. and larger, \$35.60 to \$37.60; 4-in. and 5-in., \$40.60 to \$42.60; 3-in., \$50.60 to \$52.60; Class A and gas pipe, \$4 to \$5 extra.

**Coke.**—Quotations on all grades are stronger and on by-product foundry coke producers are well sold ahead. A rapid increase in demand for furnace grade is reported for melters in this district, with a local by-product operation quoting \$7.75 per ton alongside consumer's dock and a northern New York producer \$6.50 alongside dock. Connellsville furnace coke continues at \$2.75 to \$3 per ton, Connellsville, and standard foundry is about \$3.75 per ton, Connellsville. Special brands of foundry coke are \$4.85 per net ton, ovens, and delivered prices are \$8.56 per net ton, to northern New Jersey, Jersey City and Newark and \$9.44 to New York and Brooklyn. By-product foundry coke prices are unchanged at \$9 to \$9.40, Newark or Jersey City, and \$10.06, New York or Brooklyn.

**Old Material.**—With brokers endeavoring to cover themselves on old

contracts in a rapidly rising market, buying prices are in many cases not representative of the latest purchase prices of consumers. Dealers are buying No. 1 heavy melting steel at \$13 per ton and more, delivered to eastern Pennsylvania on \$13 orders, and brokers with contracts at Weirton, West Va., and Butler, Pa., have paid as high as \$10.75 per ton, New York, to which is added a freight rate of \$5.30 per ton to destination. Specification pipe is quoted at \$13 per ton and higher, delivered eastern Pennsylvania, and stove plate is reported to be difficult to obtain at \$12 per ton, delivered, which is the highest price that has been paid by a consumer. Eastern Pennsylvania consumers are pressing for deliveries on their contracts, but apparently are not yet in need of additional tonnage.

*Dealers' buying prices per gross ton, f.o.b. New York:*

No. 1 heavy melting steel	\$10.35 to \$10.75
Heavy melting steel (yard)	7.25 to 7.75
No. 1 hvy. breakable cast	11.25 to 12.00
Stove plate (steel works)	7.75 to 8.25
Locomotive grate bars	7.75 to 8.25
Machine shop turnings	6.25 to 6.50
Short shoveling turnings	6.25 to 6.50
Cast borings (blast furn. or steel works)	6.00 to 6.50
Mixed borings and turnings	6.00 to 6.50
Steel car axles	16.00 to 16.50
Iron car axles	23.50 to 24.00
Iron and steel pipe (1 in. dia., not under 2 ft. long)	9.25
Forge fire	6.50 to 6.75
No. 1 railroad wrought	10.00 to 10.50
No. 1 yard wrot., long	7.50 to 8.00
Rails for rolling	10.50 to 11.00
Cast iron carwheels	12.00 to 12.50
Stove plate (foundry)	8.75 to 9.00
Malleable cast (railroad)	10.00
Cast borings (chemical)	10.75 to 11.25

*Prices per gross ton, deliv'd local foundries:*

No. 1 machy. cast	\$15.50 to \$16.00
No. 1 hvy. cast (columns, bldg. materials, etc.)	
cupola size	13.50 to 14.00
No. 2 cast (radiators, cast boilers, etc.)	13.00 to 13.50

prices still show an upward tendency, advances by several furnaces being reported. Sales by Cleveland interests totaled 73,000 tons during the week, or 10,000 tons more than in the previous week. This business was all in foundry and malleable iron for the remainder of the year and was well distributed among the territories served by local sellers. Consumers' stocks are reported low and shipments from several furnaces this month will sharply exceed production. Cleveland furnaces are practically sold up for the remainder of the year. Local prices on foundry and malleable iron are unchanged but another 50c. a ton advance for out of town shipment is probable. Out of town sales during the week were at the recently advanced price of \$17. Another Lake furnace interest, which for a week had been quoting a price range of \$17 to \$17.50, has established a flat \$17.50 price. One Valley producer has marked up its price to \$17, and, with higher Valley prices, the Cleveland price for local delivery, which has not been changed recently, is likely to be advanced. In Buffalo, a 50c. a ton advance to \$17 has been made for New England delivery. In Michigan, the market is unchanged at \$18. A leading producer has advanced Southern foundry iron 50c. a ton to \$16, Birmingham. Sales during the week were largely confined to small lots, one of the largest being 6000 tons placed by the Standard Sanitary Mfg. Co., with a Valley furnace. One of the Toledo furnaces of Pickands, Mather & Co. was blown out during the week.

*Prices per gross ton at Cleveland:*

N'th'n fdy., sil.	1.75 to 2.25	\$18.00
S'th'n fdy., sil.	1.75 to 2.25	22.00
Malleable		18.00
Ohio silvery, 8 per cent.		28.00
Basic Valley furnace	\$16.00 to	16.50
Stand. low phos., V'ley furn.		26.50

Prices, except on basic and low phosphorus, are delivered Cleveland. Freight rates: 50c. from local furnaces; \$3 from Jackson, Ohio; \$6 from Birmingham.

**Sheets.**—There is a good demand for auto body sheets in this territory, but other grades are rather slow. Specifications from the automotive industry in the Detroit territory continue fairly heavy and most mills have enough orders to keep them operating at present schedules from two to four weeks. Nearly all mills have adopted the new advance in prices for the fourth quarter, but consumers are as yet showing no interest in that delivery. Prices for current orders are no higher than they have been. Black sheets are being quoted

## Cleveland

### August Steel Shipments at a High Rate—Alloy Steel Bars and Cold-Rolled Strip Advanced—Pig Iron Active

CLEVELAND, Aug. 28.—With mill orders holding up to recent heavy volume, August will show an exceedingly good record in the volume of finished steel business. Demand for steel bars is heavy, which is attributed in a large measure to specifications from the automotive industry. Forge shops and other automobile parts manufacturers continue at near-capacity production. Structural shapes are moving well to manufacturing industries. Plates are only moderately active. With the continued good volume of business, there is quite a little slowing up of mill deliveries. There is not much new business in bars, plates and structural shapes, as most consumers are under contract. Buyers generally are taking out all the material they have contracted for and it is not expected that there will be much third quarter tonnage left unspecified on Sept. 10 when specifications must all be in against third quarter contracts. Fourth quarter contracts will require all specifications to be in by Dec. 10.

While steel bars and structural material are generally quoted at 1.90c., Pittsburgh, 1.85c. has not entirely disappeared. On plates, 1.85c. is still rather general, although mills are having less trouble than recently in getting 1.90c. The local mill bar price ranges from 1.85c. to 1.90c., Cleveland.

Alloy steel bars have been advanced \$2 a ton for the remainder of the year. Hot-rolled strip appears to be definitely established at third quarter prices for round-lot buyers for the next quarter, although the recently

announced advances will apply to small-lot consumers. Fourth quarter prices on cold-rolled strip are not yet definitely determined. While one producer has announced an advance, several have not yet named their prices for that delivery.

Pig Iron continues very active, with advancing prices. However, it is believed that prices will have to go still higher to induce idle merchant furnaces to go into blast.

**Pig Iron.**—The market continued very active in the past week and

#### Warehouse Prices, f.o.b. Cleveland

	Base per Lb.
Plates and struct. shapes	3.00c.
Soft steel bars	3.00c.
Reinforc. steel bars	2.25c.
Cold-fin. rounds and hex.	3.65c.
Cold-fin. flats and sq.	4.15c.
Hoops and bands	3.65c.
Cold-finished strip	5.95c.
Black sheets (No. 24)	3.40c.
Galvanized sheets (No. 24)	4.25c.
Blue ann'd sheets (No. 10)	3.25c.
No. 9 ann'd wire, per 100 lb.	\$2.85
No. 9 gal. wire, per 100 lb.	3.30
Com. wire nails, base per keg	2.85

\*Net base, including boxing and cutting to length.



at 2.65c. and galvanized at 3.40c., Pittsburgh and Valley; blue annealed at 1.90c., Pittsburgh, and 2c., Valley.

**Semi-Finished Steel.**—One producer has reestablished for the fourth quarter the present wire rod price of \$42, Cleveland. Sheet bars, large billets and slabs will probably be established at \$33, Cleveland, for the last quarter. Specifications against contracts continue heavy and deliveries are a little slow.

**Cold-Rolled Strip.**—One producer has announced a 2.85c., Cleveland, base price for the fourth quarter for 3 tons and over. Others have not yet named prices for that delivery, but will make efforts to get the market on a higher basis. If the advance holds, fender stock will probably be marked up \$3 a ton to 4.25c. Current orders for cold-rolled strip are still being taken at 2.65c., but the demand is not very active. The plan of applying the base price to 1 to 3 tons, with a 25c. per 100 lb. reduction for larger lots, never became generally effective in this territory and has been abandoned.

**Wire Products.**—A leading independent producer has announced for the fourth quarter the present prices to jobbers of 2.40c. Pittsburgh and Cleveland, for plain wire and \$2.55 per keg for nails. Current prices are firmer than in some time.

**Reinforcing Bars.**—An award of 450 tons for Cleveland Union Terminal work was the only one of size during the week. Rail steel bars are somewhat firmer, although 1.75c., mill, is still being quoted.

**Warehouse Business.**—August sales show a fair gain over those of July. Jobbers report a better volume of business, particularly in steel bars and plates, from makers of automobile parts and crane and shovel manufacturers. Deliveries by mills have slowed up somewhat, which has caused consumers to rely more on warehouses for material wanted quickly. Demand from the building field is slow.

**Hot-Rolled Strip.**—The third quarter prices generally will remain in force through the last quarter, as some of the leading producers have informed their regular trade that they will carry them through the quarter at the prices that prevailed during both the second and present quarters. These large consumers are getting strip at a net price that figured back is about an average 1.75c. base price for wide material and higher for narrow strip. Efforts have been made recently to get prices on a higher level or to 1.90c., Pittsburgh, for strip 6 to 12-in. wide, 2c. for 3 to 6-in. wide and 2.20c. for strip under 3-in. wide. However, these prices evidently will apply during the fourth quarter only to small-lot buyers. Some of the producers are working on new cards of extras for hot-rolled strip, which will simplify the present price structure by the elimination of the present classification of material into three price ranges and by the adoption of one base price for all gages and widths. It is planned to issue new list of ex-

tras shortly and to place them in effect with a new base price of possibly 1.90c. on Oct. 1.

**Alloy Steel.**—A price advance of \$2 a ton on alloy steel bars was announced Aug. 25 to apply to fourth quarter contracts and to all new current business. The advance was made by changing the base from 2.65c. to 2.75c. As consumers generally are covered for this quarter, the advance will have little effect before October. Specifications continue to come out in satisfactory volume.

**Iron Ore.**—Ore firms are making quite a few small-lot sales of Lake Superior ore for filling in consumers' requirements. Shipments continue in heavy volume.

**Coke.**—A price advance of 50c. a ton for by-product domestic coke has been made by Detroit producers effective Sept. 1 and an Ohio maker has made a similar advance for Michigan delivery, but is still quoting \$4.50, ovens, for Cleveland delivery. In Detroit, both egg and nut coke are quoted at \$6.50, delivered. Cleveland prices for local delivery are \$5.50, ovens, for egg and \$5 for nut. Foundry coke is dull and unchanged at \$3.50 to \$4.85, ovens, for Connellsville brands and \$7.75, Painesville, for by-product coke.

**Bolts, Nuts and Rivets.**—Specifications are holding up to recent fair volume and prices are unchanged. There is not much new business.

**Old Material.**—Dealers have forced prices up 25c. a ton more on No. 1 heavy melting steel and blast furnace scrap and other dealers who are short on scrap have been compelled to pay the advances to fill existing mill orders. Dealers are paying \$14.25 for No. 1 heavy melting steel for shipment to local mills exacting in their specifications and as high as \$10.25 has been offered for blast furnace scrap. There has been no buying by mills since the advance. Some of the scrap lists of Michigan automobile companies for September have been issued and show a sharp decline in offerings compared with the present month. The Dodge list totals 2000 tons and the Chrysler list 2500 tons.

Prices per gross ton delivered consumers' yards:

Basic Open-Hearth Grades		
No. 1 heavy melting steel.	\$13.25 to	\$13.75
No. 2 heavy melting steel.	12.75 to	13.00
Compressed sheet steel.	12.50 to	13.00
Light bundled sheet		
stamp'gs	11.50 to	11.75
Drop forge flashings.	11.50 to	12.00
Machine shop turnings.	7.75 to	8.25
No. 1 railroad wrought.	11.50 to	12.00
No. 2 railroad wrought.	13.50 to	13.75
No. 1 busheling	10.50 to	11.00
Pipes and flues.	9.00 to	9.50
Steel axle turnings.	12.50 to	13.00
Acid Open-Hearth Grades		
Low phos. forging crops.	16.00 to	16.50
Low phos. billet, bloom		
and slab crops.	17.00 to	17.50
Low phos. sheet bar crops.	16.50 to	17.00
Low phos. plate scrap.	15.50 to	16.00
Blast Furnace Grades		
Cast iron borings.	9.75 to	10.00
Mixed bor'gs and short		
turn'gs	9.75 to	10.00
No. 2 busheling	9.75 to	10.00
Cupola Grades		
No. 1 cast.	16.00 to	16.50
Railroad grate bars.	11.00 to	12.00
Stove plate	12.00 to	12.50
Rails under 3 ft.	16.75 to	17.25
Miscellaneous		
Railroad malleable	15.00 to	15.50
Rails for rolling	16.25 to	16.50

## Railroad Equipment

### New York Central Buys 55 Locomotives

**PURCHASE** of 55 locomotives by the New York Central was the outstanding transaction of the equipment market in the last week. Locomotive inquiries include 10 switching engines for the Belt Railway of Chicago. The North American Car Co. has placed 100 steel underframes.

Class I railroads in the first seven months this year installed 35,854 freight cars, according to reports filed with the Car Service Division of the American Railway Association. Compared with the corresponding period last year, this was a decrease of 9289 in the number of freight cars installed and a decrease of 30,404 compared with the corresponding period in 1926. Freight cars on order on Aug. 1 this year totaled 14,830 compared with 19,344 on the same date last year and 29,102 on Aug. 1, 1926. In July, the railroads installed 6137 freight cars compared with 7102 in July, 1927.

Locomotives placed in service by the Class I railroads during the first seven months in 1928 totaled 881, a decrease of 314 compared with the corresponding period last year and of 407, compared with the corresponding period in 1926. Locomotives on order on Aug. 1, 1928, totaled 73 compared with 209 on the same date in 1927 and 517 on the same date in 1926. Locomotives installed in July numbered 116 compared with 155 placed in service in July, 1927.

Details of the week's business follow:

Illinois Terminal Co. contemplates entering the market for 100 box cars. This road inquired recently for 100 to 200 gondola cars.

New York Central has ordered 30 Hudson type passenger locomotives, 25 heavy freight locomotives and five additional tenders from American Locomotive Co.

National Railways of Mexico have ordered six mallet type locomotives from American Locomotive Co.

Algoma Central is inquiring for two 2-10-2 type locomotives.

Erie Railroad has ordered one 300-hp. oil-electric locomotive to be built jointly by Ingersoll-Rand Co., General Electric Co. and American Locomotive Co.

Bangor Aroostook is inquiring for two combination baggage and mail cars.

North American Car Co. has ordered 100 steel underframes from Pressed Steel Car Co.

Wabash Railway has ordered 10 hopper cars from American Car & Foundry Co.

Anglo-Mexican Petroleum Co., Ltd., has made inquiry for eight 7000-gal. tank cars.

South Porto Rico Sugar Co. has ordered 10 cane cars and 20 flat cars of 20 tons' capacity from Magor Car Corporation.

Barrett Co. has ordered 15 50,000-lb. tank cars from General American Tank Car Corporation and 15 from American Car & Foundry Co.

International Railways of Central America has ordered 25 20-ton banana cars from Magor Car Corporation.

Belt Railway of Chicago will buy 10 switching engines.

## Pacific Coast

### Projected Pipe Line to Call for 25,000 Tons of Steel—Plate Prices Weaken—Foundry Melt Gains

SAN FRANCISCO, Aug. 25.—(By Air Mail).—Iron and steel bookings on the Pacific Coast during the past week, while not especially heavy, continued to show signs of improvement, and a few large projects were placed. Outstanding among these were 1400 tons of structural shapes for Pier No. 45 at San Francisco, booked by the Pacific Coast Steel Co.; 1160 tons for an office building in Oakland, placed with the Judson-Pacific Co., and 1508 tons of cast iron pipe for the Weyerhaeuser Timber Co., Longview, Wash., awarded to the American Cast Iron Pipe Co.

Building operations in Los Angeles during the first 15 days of the month showed an increase over the corresponding portion of July, but were considerably below the total for the first 15 days of August, 1927. The figures are as follows: August, 1928, \$4,200,914; July, 1928, \$2,347,618; August, 1927, \$6,975,679.

**Pig Iron.**—Although foundry operations in the San Francisco district have shown little improvement of late, reports from melters in the southern part of the State indicate a substantial betterment, due, no doubt, to the revival of activity in the oil fields in that section, especially in the Santa Fe Hills district. A shipment of 800 tons of Indian iron arrived in port today, 400 tons of which will be unloaded later at Los Angeles. Prices of Indian iron now range from \$24 to \$25 a ton, duty paid, f.o.b. cars San Francisco.

Prices per gross ton at San Francisco:

*Utah basic	.....	\$25.00 to \$26.00
*Utah fdy., sil.	2.75 to	
3.25	.....	25.00 to 26.00
**Indian fdy., sil.	2.75 to	
3.25	.....	24.00 to 25.00

\*Delivered San Francisco.

\*\*Duty paid, f.o.b. cars San Francisco.

**Bars.**—The majority of both sales and inquiries for reinforcing steel bars involve relatively small lots, ranging from 20 to 60 tons. One of the largest inquiries that has come up for figures in this district this year calls for 525 tons for the Bernal Cut project in San Francisco, bids on which open Sept. 17. Out-of-stock prices have shown little signs of strengthening, and 1.85c. to 2c. continues to be the range.

**Plates.**—Interest in the plate market continues to center around the 7200 tons for distributing mains for the

East Bay Municipal Utility District, Oakland, bids on which were opened last week. As alternate bids were taken on several different types of pipe, including cast iron and concrete steel-lined pipe, the district's engineers have not yet arrived at any decision. The Birchfield Boiler Co. was low bidder on 330 tons for a 32-in. pipe line at Tacoma. The Oregon-Washington Railroad & Navigation Co., Portland, Ore., will open bids Sept. 4 on 150 tons of plates. Plate prices now range from 2.20c. to 2.30c., Pacific ports, the latter figure applying only to small lots.

**Shapes.**—Structural steel shapes continue actively in demand, and awards this week were the heaviest in over two months. In addition to the two projects mentioned above, the Moore Drydock Co. took 250 tons for Hangar No. 4 at Oakland, Cal., for the Port Commission. Included among new inquiries pending are 700 tons for a factory addition at Tacoma, Wash. Fabricated and erected prices in the section are around \$80 a ton. Prices on plain material remain firm at 2.35c., c.i.f. Pacific ports.

**Cast Iron Pipe.**—Demand for cast iron pipe has improved. Awards this week exceeded 2500 tons and were the heaviest in over two months. T. Jakaboni secured the general contract for 469 tons of 6 to 30-in. Class C pipe for the improvement of Forty-second Avenue, South, Seattle, Wash., and Fiorito Brothers took the general contract for 188 tons of 4 to 8-in. Classes B and C pipe for the improvement of Thirty-fourth Avenue, N. W., Seattle. Santa Cruz, Cal., placed 115 tons of 8-in. Class B, the Grinnell Co. taking 91 tons and the American Cast Iron Pipe Co., 24 tons. The Pacific States Cast Iron Pipe Co. was awarded 318 tons of 2-in. Class B pipe for Los Angeles. The largest order of the week was booked by the American Cast Iron Pipe Co. and called for 1508 tons of 4 to 12-in. Class C pipe for the Weyerhaeuser Timber Co. at Longview, Wash. El Monte, Cal., will open bids Sept. 4 for 133 tons of 4 and 6-in. Class B pipe. The United States Cast Iron Pipe & Foundry Co. was low bidder on 1210 tons of 32-in. pipe for East Eleventh Street and Taylor Street, Tacoma, Wash., but alternate bids were also taken on welded steel pipe, the price on the latter being considerably below that for cast iron. San Bernardino, Cal., will open bids Aug. 28 for 258 tons of 20 and 30-in. centrifugal pipe, and San Diego, Cal., will take bids Sept. 10 for the improvement of Mountain View Drive, calling for 178 tons of 4 to 10-in. Class B. The Spring Valley Water Co., San Francisco, has taken bids on 1062 tons of 6 and 8-in. Class 150 pipe.

**Standard Pipe.**—Demand for oil

country goods continues to increase, well casing being principally in demand. The Pacific Gas & Electric Co., the Pacific Lighting Co. and the Southern California Edison Co. are considering the building of a pipe line to transport natural gas from the Ventura Avenue and Buttonwillow Ridge fields in the southern part of the State to the San Francisco district. The cost of this line is estimated at \$20,000,000 and will require from 25,000 to 50,000 tons or more of 12 to 20-in. line pipe.

**Coke.**—A shipment of approximately 5000 gross tons of English by-product and beehive coke is scheduled to arrive in San Francisco Sept. 20. Most of this material will be unloaded at San Francisco, the remainder to be delivered to Portland and Seattle foundries. Prices on English coke remain unchanged, and beehive coke is quoted at \$16 a net ton, delivered incoming dock, while by-product ranges from \$11.50 to \$13 a net ton.

**Sheets.**—An eastern Ohio sheet mill recently sold a large tonnage of black and galvanized sheets to a Seattle jobber, and upon arrival they will be put in storage in Seattle and Portland, as well as in Tacoma, where the buyer is now building a warehouse. Reports of an advance of \$2 per ton in prices by Eastern mills have not as yet been reflected in Seattle market, which, if anything, is lower than for some time. Current prices, f.o.b. Seattle, on sheets in carload lots are: 4.10c. per lb. for No. 24 galvanized, 3.30c. to 3.35c. for No. 24 black, and 2.60c. to 2.62½c. for No. 10 blue annealed.

### Otis Steel Co. Adds Another Open-Hearth Furnace

The Otis Steel Co., Cleveland, will immediately begin the erection of an additional 125-ton open-hearth furnace. The contract for furnishing and fabricating the steel for the furnace has been awarded to the Wellman-Seaver-Morgan Co., Cleveland, for delivery in 14 days. This will be the second open-hearth furnace to be built by the Otis company this year. On its completion the company will have seven furnaces.

### Furnace Company May Liquidate

Stockholders of the Warwick Iron & Steel Co., owner of two furnaces at Pottstown, Pa., have been notified of a meeting early in September, at which disposal of the assets and liquidation of the company will be considered.

### Pittsburgh Engineers to Discuss Welding

An all day discussion of welding, under the auspices of the Engineers Society of Western Pennsylvania, will be held at the William Penn Hotel, Pittsburgh, Friday, Nov. 2.

### Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and struc. shapes	3.15c.
Soft steel bars	3.15c.
Small angles, 3/16-in. and over	3.15c.
Small angles, under 3/16-in.	3.55c.
Small channels and tees, ¾-in. to 2¼-in.	3.75c.
Spring steel, ¼-in. and thicker	5.00c.
Black sheets (No. 24)	5.00c.
Blue ann'd sheets (No. 10)	4.00c.
Galv. sheets (No. 24)	5.40c.
Struc. rivets, ½-in. and larger	5.65c.
Com. wire nails, base per keg	\$3.40
Cement c'd nails, 100-lb. keg	3.40



## St. Louis

### Granite City Pig Iron Up 50c a Ton—6000 Tons of Rails Placed—Scrap Stronger

ST. LOUIS, Aug. 28.—Sales of pig iron in this market were heavier during the past week than for some time, the Granite City maker selling about 10,000 tons and a leading Southern producer about 3000 tons. The Granite City maker advanced its price 50c. a ton to \$19 to \$19.50, f.o.b. furnace, on Friday, following the heavy bookings. Southern furnaces have raised prices 75c. a ton to \$16.25, Birmingham, for No. 2 foundry iron. The melt of stove foundries, as well as jobbing and implement foundries, is increasing, and generally there is a stronger feeling regarding the future. The shipments of the local maker have been unusually large so far this month. The largest sale of Southern iron during the week was a 500-ton lot. Outstanding sales by the Granite City maker include 2300 tons to an Illinois specialty manufacturer, 750 tons to a Davenport, Iowa, railroad specialty maker; 1200 tons to an Illinois specialty maker; 800 tons to an Illinois equipment builder; 600 tons to a Rock Island melter; 400 tons to a stove manufacturer and 250 tons to a Louisville melter.

#### Prices per gross ton at St. Louis:

No. 2 fdy., sil. 1.75 to 2.25, f.o.b.	
Granite City, Ill. ....	\$19.00 to \$19.50
N'th'n No. 2 fdy., deliv'd St. Louis.	20.16
Southern No. 2 fdy., deliv'd.....	20.67
Northern malleable, deliv'd.....	20.16
Northern basic, deliv'd.....	20.16

Freight rates: 81c. Granite City to St. Louis; \$2.16 from Chicago; \$4.42 from Birmingham.

**Rails.**—The Missouri-Kansas-Texas Railroad has purchased 6000 tons of 90-lb. rails, 3900 tons from the Colorado Fuel & Iron Co. and 2100 tons from the Bethlehem Steel Co., the latter to be shipped by water. These orders represent the balance of requisitions issued some months ago but curtailed.

**Finished Steel.**—The volume of incoming orders received by the Granite City Steel Co. continues at a satisfactory rate, especially in sheets and

tin plate. While tank plates continue slow, prices are firm. The price situation in sheets and plates is greatly improved, and many buyers admit that advances are probable for the next quarter. Warehouse business is improved in the St. Louis industrial district, but orders from the oil fields are so small that they more than offset the gains made here. Reinforcing bar awards for the week total 1000 tons, 600 tons placed with the Laclede Steel Co. for an express terminal building for the Terminal Railroad Association of St. Louis and 400 tons let to the Missouri Rolling Mills Corporation for two sewer projects.

**Coke.**—The market is quiet. Dealers are not showing much interest in domestic grades, and buying of industrial coke is light, although there has been an improvement in the consumption of pig iron.

**Old Material.**—Further gains were made last week in the old material market, in which price advances were recorded in the preceding week for the first time in several months. However, the advances have been due almost entirely to the activities of dealers, who have been paying higher

prices to get material with which to fill existing contracts. The higher market has not yet affected consumers, who are buying sparingly. Miscellaneous standard-section rails, bundled sheets, rails for rolling and cast iron carwheels are up 50c. a ton, and railroad springs are \$1 higher. Railroad lists include: Chicago, Burlington & Quincy, 4869 tons; Union Pacific, 380 tons; Missouri Pacific, 113 carloads; Nickel Plate, 23 carloads; Mobile & Ohio, 27 carloads, and Chicago, Milwaukee & St. Paul, eight carloads.

#### Dealers' buying prices, per gross ton, f.o.b. St. Louis district:

Heavy melting steel.....	\$11.00 to \$11.50
No. 1 locomotive tires....	11.75 to 12.00
Heavy shoveling steel.....	11.00 to 11.50
Miscel. stand.-sec. rails	
includ'g frogs, sw'ches	
and guards, cut apart....	13.00 to 13.50
Railroad springs.....	14.00 to 14.50
Bundled sheets.....	8.25 to 8.75
No. 2 railroad wrought....	11.00 to 11.50
No. 1 busheling.....	9.00 to 9.50
Cast iron borings.....	8.25 to 8.75
Iron rails.....	13.00 to 13.50
Rails for rolling.....	13.50 to 14.00
Machine shop turnings....	7.00 to 7.50
Steel car axles.....	18.00 to 18.50
Iron car axles.....	25.50 to 25.75
Wrot. iron bars and trans.	18.25 to 18.75
No. 1 railroad wrought....	9.00 to 9.50
Steel rails, less than 3 ft..	15.00 to 15.50
Steel angle bars.....	12.50 to 13.00
Cast iron carwheels.....	13.00 to 13.50
No. 1 machinery cast.....	13.50 to 14.00
Railroad malleable.....	11.50 to 12.00
No. 1 railroad cast.....	13.00 to 13.50
Stove plate.....	11.00 to 11.50
Agricult. malleable.....	11.50 to 12.00
Relay. rails, 60 lb. and	
under.....	20.50 to 23.50
Relay. rails, 70 lb. and	
over.....	26.50 to 29.00

## Birmingham

### Pig Iron Prices Advanced 75c a Ton—Demand for Finished Steel Sustained

BIRMINGHAM, Aug. 28.—Quotations on No. 2 foundry iron were increased from \$15.50 to \$16.25 on Aug. 24. Furnace books were opened for fourth quarter on that date, and some tonnage has been entered for that period. Several small-lot sales were made last week, but the total volume was not large. There has been a noticeable increase in inquiries in the last few days. The volume of shipments continues good. The Tennessee company changed its furnaces Nos. 1, 2 and 5 at Ensley, Ala., from basic to foundry iron on Aug. 22. The No. 3 Woodward furnace of the Woodward Iron Co. was blown out Aug. 21 for relining. On Aug. 25 the Vanderbilt No. 2 furnace of this company was blown in on foundry iron. No other changes have been made. A total of 17 furnaces are in blast, with 12 on foundry, three on basic, one on recarburizing iron and one on ferromanganese.

#### Prices per gross ton, f.o.b. Birmingham dist. furnaces:

No. 2 fdy., 1.75 to 2.25 sil.....	\$16.25
No. 1 fdy., 2.25 to 2.75 sil.....	16.75
Basic.....	16.25

**Finished Steel.**—Demand shows no signs of diminishing, and sales officials look for an active fourth quarter. Practically all lines show activity

with the exception of steel rails. Sheets are strong, as are plates and shapes. The present mill prices have prevailed for several weeks. Fourth quarter prices are expected to be announced shortly. Structural steel and reinforcing bar tonnages now being booked represent a fair aggregate of small to moderate-sized orders. The Virginia Bridge & Iron Co. will furnish 150 tons for a cotton mill at Albertville, Ala. The Tennessee company reduced the number of active open-hearth furnaces from 11 to six on Aug. 22, when it shut down all open-hearths at Ensley. Six are active at Fairfield, Ala., and the Gulf States Steel Co. is operating three at Alabama City, Ala.

**Cast Iron Pipe.**—Sales of pressure pipe have been sufficient to sustain plant operations at a rate of 75 per cent of capacity. The market has been supported by small orders only. For the past several weeks August business has been under that of July and also that of August, last year. Private business is holding up well, with sales made largely through quiet negotiations. Shipments approximate the amount of the current make. Quotations have been \$34 to \$35 per net ton, Birmingham, on 6-in. and larger diameters for some time.

#### Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and struc. shapes.....	3.25c.
Bars, soft steel or iron.....	3.15c.
Cold-fin. rounds, shafting, screw	
stock.....	3.75c.
Black sheets (No. 24).....	4.45c.
Galv. sheets (No. 24).....	5.25c.
Blue ann'l'd sheets (No. 10).....	3.60c.
Black corrug. sheets (No. 24)....	4.50c.
Galv. corrug. sheets.....	5.30c.
Structural rivets.....	3.75c.
Boiler rivets.....	3.75c.
Per Cent Off List	
Tank rivets, 7/16-in. and smaller, 100	
lb. or more.....	70
Less than 100 lb.....	65
Machine bolts.....	60
Carriage bolts.....	60
Lag screws.....	60
Hot-press. nuts, sq., blank or tapped,	
200 lb. or more.....	60
Less than 200 lb.....	50
Hot-press. nuts, hex., blank or tapped,	
200 lb. or more.....	60
Less than 200 lb.....	50

**Coke.**—Activity in the market is confined largely to spot sales. Shipments are fair for the season, and a little coke is moving out to the larger centers of the country. Quotations on both spot and contract foundry coke remain at \$5 per net ton, Birmingham.

**Old Material.**—Demand has been increasing gradually for the past few weeks, but has not yet developed sufficient strength to affect prices. There

is considerable demand for No. 1 cast at \$14.50.

*Prices per gross ton, deliv'd Birmingham dist. consumers' yards:*

Heavy melting steel.....	\$8.50 to	\$9.00
Scrap steel rails.....	11.00 to	11.50
Short shoveling turnings..	7.50 to	8.00
Cast iron borings.....		8.00
Stove plate .....		13.50
Steel axles .....	19.00 to	20.00
Iron axles .....	21.00 to	22.00
No. 1 railroad wrought...	10.00 to	10.50
Rails for rolling .....		13.00
No. 1 cast.....		14.50
Tramcar wheels .....	12.50 to	13.50
Cast iron carwheels.....	12.00 to	13.00
Cast iron borings, chem...	13.50 to	14.00

## Canada

### Demand for Fabricated Structural Steel Is Heavy—Pig Iron Buying on Up-Grade

TORONTO, ONT., Aug. 28.—A more active buying movement features business in the Canadian pig iron markets. Spot sales, however, are most prominent in weekly transactions, and, while some of these run from 50 to 200 tons, a few have recently been closed for as much as 500 to 600 tons for shipment before the end of September. Some contracts for fourth quarter have been closed, but no active buying has developed for that period. Both at Toronto and at Montreal the demand for merchant iron is on the up-grade. The Algoma Steel Corporation, Sault Ste. Marie, Ont., has blown out one of its blast furnaces, leaving two stacks in and reducing the total number of active furnaces in Canada to seven. Two stacks are in at Sydney, N. S.; two at Hamilton, Ont., and one at Port Colborne, Ont. Canadian prices are firm but unchanged.

*Prices per gross ton:*

Delivered Toronto	
No. 1 fdy., sil. 2.25 to 2.75.	\$23.10 to \$23.60
No. 2 fdy., sil. 1.75 to 2.25.	23.10 to 23.60
Malleable .....	23.10 to 23.60
Delivered Montreal	
No. 1 fdy., sil. 2.25 to 2.75.	24.50 to 25.00
No. 2 fdy., sil. 1.75 to 2.25.	24.50 to 25.00
Malleable .....	24.50 to 25.00
Basic .....	23.50 to 24.00
Imported Iron, Montreal Warehouse	
Summerlee .....	33.50
Carron .....	33.00

**Structural Steel.**—Structural steel fabricators are experiencing one of the best years in history. Building activities in Canada have reached new high levels and the demand for structural steel and reinforcing bars has been correspondingly large for some time past. The Dominion Bridge Co. has closed a contract with the T. Eaton Co., Toronto, for 12,000 tons of steel for a new furniture building. The McGregor & McIntyre Structural Steel, Ltd., Toronto, has received an order for 4000 tons of steel for the Goodyear Tire & Rubber Co.'s plant addition at New Toronto, Ont. In connection with a proposed 17-story extension to the Royal York Hotel at Toronto 7000 tons of steel will be required, and 3500 tons will be purchased for an addition to the plant of Willys-Overland, Ltd., Weston, Ont. Plans for a bridge over the Saskatchewan River for the Canadian Pacific Railway call for several thousand tons

of steel. According to leading structural steel fabricators there is enough business pending in Canada at present to keep plants running at capacity for three or four years.

**Old Material.**—With the iron and steel industry in general passing out of the summer depression, business in scrap is taking a turn for the better. Sales for the week advanced some-

what over those of the previous week, and inquiries being received indicate that consumers may place large orders both for immediate needs and for future delivery. Shipments against old contracts are heavier, and the general movement of scrap is growing. In the Montreal district, scrap sales for the week were the largest in the past two months. Current demand is mostly for domestic consumption, although shipments to United States buyers continue in good volume. Prices are firmer but unchanged.

*Dealers' buying prices:*

	Per Gross Ton	
	Toronto	Montreal
Heavy melting steel.....	\$9.00	\$7.00
Rails, scrap .....	10.00	9.00
No. 1 wrought.....	9.00	11.00
Machine shop turnings..	7.00	5.00
Boiler plate .....	7.00	6.00
Heavy axle turnings.....	7.50	6.50
Cast borings .....	7.50	5.00
Steel turnings.....	7.00	5.50
Wrought pipe .....	5.00	5.00
Steel axles .....	14.00	20.00
Axles, wrought iron.....	16.00	22.00
No. 1 machinery cast....		16.00
Stove plate .....		13.00
Standard carwheels .....		16.00
Malleable .....		13.00
Per Net Ton		
No. 1 machinery cast....	15.00	....
Stove plate .....	9.00	....
Standard carwheels .....	13.00	....
Malleable scrap .....	13.00	....

## Boston

### Pig Iron Market Is More Active and Prices Firmer—Scrap Has a Stronger Tone

BOSTON, Aug. 28.—Pig iron sales in this territory exceeded 12,000 tons in the past week, the largest amount for any similar period in months. Approximately 90 per cent of the business was taken by Buffalo, New York and Massachusetts furnaces, the Mystic Iron Works taking about two-thirds. During the first 25 days of August the Mystic Iron Works booked more than 25,000 tons. The past week's business included 2000 tons,

silicon 3 to 3.50 and higher, for the Whitin Machine Works, Whitinsville, Mass.; 2000 tons of No. 2X and No. 1X and 300 tons of malleable for the General Fire Extinguisher Co., Providence, R. I.; 1200 tons of No. 2X and No. 1X for a Connecticut melter; 800 tons for the General Electric Co.; 600 tons for Pittsfield, Mass., and 200 tons for Everett, Mass.; 800 tons of No. 2 plain for a Bridgeport, Conn., plant; 500 tons No. 2X for a central Massachusetts machinery manufacturer; and numerous smaller lots, including Indian No. 2X at \$21.50 and \$21.75 a ton, on dock Boston, duty paid. Two Buffalo stacks have again advanced prices 50c. a ton to \$17, f.o.b. furnace, for No. 2 plain, \$17.50 for No. 2X and \$18.50 for No. 1X. Another stack has advanced from \$16 a ton, base furnace, to \$16.50. Low prices have again been made, however, by furnaces east of Buffalo.

*Foundry iron prices per gross ton deliv'd to most New England points:*

*Buffalo, sil. 1.75 to 2.25..	\$21.41 to \$21.91
*Buffalo, sil. 2.25 to 2.75..	21.91 to 22.41
†Buffalo, sil. 1.75 to 2.25..	20.28 to 20.78
†Buffalo, sil. 2.25 to 2.75..	20.78 to 21.28
East. Penn., sil. 1.75 to 2.25	23.15 to 23.65
East. Penn., sil. 2.25 to 2.75	23.65 to 24.15
Va., sil. 1.75 to 2.25.....	25.71
Va., sil. 2.25 to 2.75.....	26.21
Ala., sil. 1.75 to 2.25.....	23.16 to 25.02
Ala., sil. 2.25 to 2.75.....	23.66 to 25.52

Freight rates: \$4.91 all rail and \$3.78 rail and water from Buffalo; \$3.65 from eastern Pennsylvania; \$5.21 all rail from Virginia; \$6.91 to \$8.77 from Alabama. \*All rail rate. †Rail and water rate.

**Imports.**—Receipts of foreign pig iron at this port during the first half of August totaled 1295 tons, of which

#### Warehouse Prices, f.o.b. Boston

	Base per Lb.
Plates .....	3.365c.
Structural shapes.....	3.365c.
Angles and beams.....	3.365c.
Tees .....	3.365c.
Zees .....	3.465c.
Soft steel bars, small shapes.....	3.265c.
Flats, hot-rolled .....	4.15c.
Reinforcing bars.....	3.265c. to 3.54c.
Iron bars—	
Refined .....	3.265c.
Best refined .....	4.60c.
Norway rounds .....	6.60c.
Norway, squares and flats.....	7.10c.
Spring steel—	
Open-hearth .....	5.00c. to 10.00c.
Crucible .....	12.00c.
Tie steel .....	4.50c. to 4.75c.
Bands .....	4.015c. to 5.00c.
Hoop steel .....	5.50c. to 6.00c.
Cold rolled steel—	
Rounds and hex.....	*3.45 to 5.45c.
Squares and flats.....	*3.95c. to 6.95c.
Toe calk steel.....	6.00c.
Rivets, structural or boiler.....	4.50c.
Per Cent Off List	
Machine bolts .....	50 and 5
Carriage bolts .....	50 and 5
Lag screws .....	50 and 5
Hot pressed nuts .....	50 and 5
Cold-punched nuts .....	50 and 5
Stove bolts .....	70 and 10

\*Including quantity differentials.



600 tons was Dutch and the rest Indian iron. Consignments of both Indian and Dutch iron are coming forward regularly each fortnight. Imports of ore during the first half of August were 16,084 tons.

**Coke.**—The New England Coal & Coke Co. and the Providence Gas Co. intimate there will be no change on Sept. 1 in the price of by-product foundry coke, which is \$11 a ton, delivered within a \$3.10 freight rate zone. Indications are these companies will do a larger furnace and domestic coke business in August than in July, the previous high record month of 1928 on shipments. Owing to the necessity of making minor changes in pipe lines, the new ovens in Connecticut in all probability will not be lighted before Oct. 1, instead of Sept. 1, as originally intended. Comparatively little furnace coke made outside is coming into New England.

**Cast Iron Pipe.**—Municipalities and industrial companies continue to buy pipe freely. Medford, Mass., has purchased 100 tons of 8-in. pipe from R. D. Wood & Co. The Navy Department, Newport, R. I., closed bids Aug. 22 on 200 tons of 6 to 16-in., but has made no award. On Aug. 27, bids were closed on 150 tons of 6 to 12-in. pipe for Camp Devens, Mass. No other open business is reported. Owing to firmer Alabama pig iron prices, pipe foundries are inclined to lift prices on small dimensions, but the market for large pipe is still subject to concessions. The range on 4-in. pipe is \$45.10 to \$46.10 a ton, delivered common Boston freight rate points, and on 6-in. to 12-in., \$41.10 to \$42.10. The usual \$5 differential on class A and gas pipe is asked.

**Old Material.**—Prices for No. 1 heavy melting steel for Pittsburgh

district shipment are very firm at \$9.50 to \$9.75 a ton, on cars shipping point, with nine out of every 10 sales at \$9.75. Higher prices are being paid for steel turnings, forge flashings and forge scrap for Pittsburgh district delivery. Little scrap is moving to eastern Pennsylvania consuming points, but the market looks firmer. The local market for rails is easier, presumably because of pending offerings. The Maine Central Railroad on Sept. 5 closes bids on 875 tons of No. 1 rails, 1650 tons scrap rails and miscellaneous material. The Boston Elevated Railway Co. on Aug. 29 closes bids on 1000 tons of girder rails and seven cars of miscellaneous material. New England foundries show more interest in machinery cast, but are buying largely from local or nearby yards. Local brokers are securing few orders. Two steamers with steel scrap cleared from Boston last week, one with 3552 tons for Danzig, and the other with 7200 tons for Genoa. Another steamer will load here about the middle of September for Danzig.

*Buying prices per gross ton, f.o.b. Boston rate shipping points:*

No. 1 heavy melting steel.	\$9.50 to \$9.75
Scrap T rails .....	8.00 to 8.50
Scrap girder rails.....	7.50 to 8.00
No. 1 railroad wrought....	8.50 to 9.00
No. 1 yard wrought.....	7.00 to 7.50
Machine shop turnings....	5.50 to 6.00
Cast iron borings (steel works and rolling mill)...	5.50 to 6.00
Bundled skeleton, long....	7.00 to 7.50
Forge flashings .....	7.75 to 8.25
Blast furnace borings and turnings .....	5.00 to 5.50
Forge scrap .....	6.00 to 6.50
Shafting .....	12.00 to 12.50
Steel car axles.....	14.00 to 14.50
Wrought pipe 1 in. in diameter (over 2 ft. long)	8.50 to 9.00
Rails for rolling.....	9.50 to 10.00
Cast iron borings, chemical	9.50 to 10.00

*Prices per gross ton deliv'd consumers' yards:*

Textile cast .....	\$13.50 to \$14.00
No. 1 machinery cast.....	15.00 to 15.50
No. 2 machinery cast.....	13.50 to 14.50
Stove plate .....	10.00 to 10.50
Railroad malleable .....	15.00 to 15.50

## Buffalo

### Higher Pig Iron Prices Announced by Furnaces—Steel Mills Operating at Near-Capacity Rate

**BUFFALO, Aug. 28.**—Buffalo pig iron producers today announced an advance in prices, effective immediately, of 50c. a ton. The new schedule, which, it is said, will be quoted by all Buffalo producers, is \$17.50 for No. 2 plain, \$18 for No. 2 X, \$19 for No. 1 X and \$18 for malleable. The Buffalo furnaces have for some time been quoting on a \$17 base for delivery in the immediate district, but for

shipment to New England and to lower New York State and New Jersey quotations of \$16 and \$16.50, furnace, have been made. Last week, however, prices for outside shipment were increased to a \$17 basis, though some outstanding quotations at the former prices have not been closed.

*Prices per gross ton, f.o.b. furnace:*

No. 2 fdy., sil. 1.75 to 2.25	\$17.00 to \$17.50
No. 2X fdy., sil. 2.25 to 2.75	17.50 to 18.00
No. 1X fdy., sil. 2.75 to 3.25	18.50 to 19.00
Malleable, sil. up to 2.25..	17.50 to 18.00
Basic .....	16.50 to 17.00
Lake Superior charcoal .....	27.28

**Finished Iron and Steel.**—With mills operating at close to 90 per cent and business brisk, the market is in a very healthy condition. The movement for higher prices is general. Though formal announcement is being withheld, it is said that fourth quarter bars and shapes will be 2.10c., Buffalo. Sheet prices of 2.75c. for

black and 3.60c. for galvanized are in prospect. Alloy steel business is good and production is running ahead of last year. Bolt and nut business also is good and the market is firm. Prices on reinforcing bars have stiffened, with 2.515c. being quoted by one concern on bars delivered from warehouse.

**Old Material.**—No large sales have been made during the week, but there has been a strong effort by dealers to fill existing contracts. The mill which last week bought at \$15 is still in the market, but No. 1 heavy melting steel of the grade specified is difficult to get and shipments are being made slowly. A large producer whose last purchase of No. 1 heavy melting steel was at \$13.75 states that it will not enter the market as long as No. 1 steel is held at present prices. With 10,000 tons of scrap coming in each week by boat and having a stockpile larger than it was in November of last year, its needs for the present are supplied. Some No. 1 machinery cast has been sold at \$14.75 and some at \$14.50. Stove plate sales have been made at \$14 and railroad malleable at \$14.75. Scrap supplies available for purchase and sale by dealers are light and practically all dealers are sold short and are offering as much as they are receiving. As high as \$12.50 is said to have been paid by some dealers for No. 2 steel.

*Prices per gross ton, f.o.b. Buffalo consumers' plants:*

Basic Open-Hearth Grades	
No. 1 heavy melting steel.	\$14.00 to \$15.00
No. 2 heavy melting steel.	12.25
Scrap rails .....	13.00 to 13.50
Hydraulic comp. sheets...	12.25
Hand bundled sheets.....	8.00 to 8.50
Drop forge flashings.....	12.00 to 12.50
No. 1 busheling.....	12.25
Hvy. steel axle turnings....	12.00 to 12.50
Machine shop turnings....	7.00 to 7.50
No. 1 railroad wrought....	11.00 to 11.50
Acid Open-Hearth Grades	
R'l'd knuckles and couplers	15.00 to 15.50
R'l'd coil and leaf springs	16.00 to 16.50
Roll'd steel wheels.....	15.50 to 16.00
Low phos. billet and bloom ends .....	16.00 to 16.50
Electric Furnace Grades	
Hvy. steel axle turnings..	12.00 to 12.50
Short shov. steel turnings.	10.00 to 10.50
Blast Furnace Grades	
Short shov. steel turnings.	10.00 to 10.50
Short mixed borings and turnings .....	9.50 to 10.00
Cast iron borings.....	9.50 to 10.00
No. 2 busheling.....	9.00 to 9.25
Rolling Mill Grades	
Steel car axles.....	16.50 to 17.00
Iron axles .....	19.50 to 20.00
Cupola Grades	
No. 1 machinery cast....	14.50 to 15.00
Stove plate .....	13.50 to 14.00
Locomotive grate bars....	11.25 to 11.75
Steel rails, 3 ft. and under.	16.00 to 16.50
Cast iron carwheels.....	12.00 to 12.50
Malleable Grades	
Industrial .....	15.00 to 15.50
Railroad .....	15.00 to 15.50
Agricultural .....	15.00 to 15.50

Examination for associate highway bridge engineers, with entrance salary of \$3,200, is announced by the Civil Service Commission, Washington. Applications must be filed with the commission by Sept. 26. Full information may be obtained from the commission, or from the board of examiners at the post office or custom house in any city.

#### Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and struct. shapes.....	3.40c.
Soft steel bars.....	3.30c.
Reinforcing bars .....	2.75c.
Cold-fin. flats, sq. and hex.....	4.45c.
Rounds .....	3.95c.
Cold-rolled strip steel.....	5.85c.
Black sheets (No. 24).....	4.20c.
Galv. sheets (No. 24).....	4.70c. to 5.05c.
Blue ann'l'd sheets (No. 10).....	3.70c.
Com. wire nails, base per keg.....	\$3.65
Black wire, base per 100 lb.....	3.90

## Detroit

### Employment Record Broken for Third Consecutive Week— Automobile Output at High Rate

DETROIT, Aug. 28.—Business in the Detroit area continues its steady advance. All-time records of Detroit employment have been shattered for the third consecutive week, according to the barometer of the Employers' Association, which reflects the status of the combined payrolls of firms constituting about two-thirds of the city's working population. The increase for the past week was 7504. This brings the total to 287,503, which is the highest employment ever recorded for this city. The corresponding figure of a year ago was 206,074, or 81,529 below the present total.

July production for all General Motors Corporation cars showed a recession from the peak previously reported. Consumers' sales for July dropped to 177,728 units from 206,259 in June. The July figure of 1927 was 134,749. Dealers' sales for July were 169,473, compared with 186,160 in June and 136,909 in July of 1927. July daily output averaged 7400 cars against 7900 in June. For the first seven months of the current year consumer sales totaled 1,240,461, compared with 975,230 for the same period a year ago. The parallel figures for dealer sales were 1,252,789 for 1928 and 1,020,386 for 1927.

The Buick Motor Co., Flint, Mich., is arranging to put on night shifts to increase the production schedule to 1300 cars, which will be a new record for the Buick organization. E. T. Strong, president of the company, states that since July 28 more business has been booked by his company than ever before in the same period of time.

During the past three weeks, production of Dodge cars under the new Chrysler management has been increased from 800 to 1000 a day, with a sufficient increase in unfilled orders to guarantee capacity operation throughout the next three months.

It is said that the new Chrysler organization is aiming at an output of 750,000 cars in 1929, and more than a million in 1930. The Chrysler company as a whole is now running from 50,000 to 60,000 cars behind orders.

The Ford Motor Co., Detroit, plans to triple its production of tri-motor aeroplanes. Since last May the production has averaged one a week. This plane is equipped with a Wasp engine, has a wing span of 78 ft., a capacity of 14 passengers and costs \$65,000.

A new record for one day's production was made by the Graham-Paige Motors Corporation, Detroit, Aug. 14, with a total of 516 cars. This company is feeling no seasonal slump as yet.

Sales of Oakland and Pontiac sixes by the Oakland Motor Car Co., Pontiac, Mich., in July amounted to 22,704 units, a gain of 35½ per cent over the figure for July of the pre-

vious year. The records of this company show 184,252 units shipped in the first seven months of the current year, as compared with 112,888 for a like period of 1927. In fact, the total output of 1927 was only 192,966 units. At the end of July the production total was within 9000 units of the entire 1927 production and the 1927 production was an increase of 40 per cent over that for 1926.

For the first seven months of this year the production of the Olds Motor Works, Lansing, Mich., exceeded all previous full year records.

Sales of the Willys-Overland Co., Toledo, Ohio, for the first seven months totaled approximately 225,000 units, compared with a production of

171,743 units in the entire year 1927. It is expected that total 1928 production will be nearly twice that of 1927.

The production schedule for Nash Motors Co., Kenosha, Wis., is approximately 22,000 units for August. The September schedule will probably be 23,000 units. August deliveries on order amount to 32,360 units.

The market on old material has registered several increases during the past week, with the result that dealers are disinclined to sell at present prices. Mills and furnaces have not been able to cover all of their requirements at present prices. The market is decidedly strong.

Dealers' buying prices per gross ton f.o.b. cars, Detroit:

Hvy. melting and shov.	
steel .....	\$11.50 to \$12.00
Borings and short turnings	7.50 to 8.00
Long turnings .....	6.00 to 6.50
No. 1 machinery cast.....	14.00 to 15.00
Automobile cast.....	19.00 to 20.50
Hydraul. comp. sheets....	11.25 to 11.75
Stove plate .....	11.00 to 12.00
No. 1 busheling .....	9.00 to 9.50
Sheet clippings .....	7.00 to 7.50
Flashings .....	9.75 to 10.25

## Cincinnati

### Heavy Pig Iron Buying Precedes 75c. a Ton Advance by Alabama Producers—Firmer Tone in Scrap

CINCINNATI, Aug. 28.—Alabama pig iron makers have announced an increase of 75c. a ton to \$16.25, base Birmingham, while the one furnace interest in Tennessee has advanced prices 50c. a ton and is now adhering to a minimum of \$16, base Birmingham. As a result of heavy buying immediately preceding the advance, pig iron sales fell only slightly short of 25,000 tons in the past week and were the largest this year. Both Southern and Northern irons are showing greater strength from the standpoint of prices. A leading district furnace has raised its quotations an average of \$1 a ton and is getting the full silicon differentials. Northern Ohio sellers evidently have booked sufficient tonnages recently to relax somewhat the pressure for business in this territory so that the situation, so far as nearby producers are concerned, is the most favorable in months. Purchases of Southern iron have included several sizable orders. A district consumer has taken 1500 tons of Northern foundry iron, and a Michigan melter has contracted for 500 tons of Jackson County silvery. A large percentage of bookings consists of small lots ranging from single carloads up to 300 tons. The only important inquiry before the trade calls for 500 tons of foundry for delivery to a Springfield, Ohio, company.

Prices per gross ton, deliv'd Cincinnati:

So. Ohio fdy., sil. 1.75 to 2.25 .....	\$19.89
So. Ohio malleable.....	\$20.14 to 20.89
Ala. fdy., sil. 1.75 to 2.25 ..	19.94
Ala. fdy., sil. 2.25 to 2.75 ..	20.44
Tenn. fdy., sil. 1.75 to 2.25 ..	19.69
So'th'n Ohio silvery 8 per cent .....	26.89

Freight rates, \$1.89 from Ironton and Jackson, Ohio; \$3.69 from Birmingham.

Warehouse Business.—Prices are holding well in this territory in ware-

house products, being unchanged except on hoops, which have been reduced from 4.40c. to 4.25c. per lb. Steel and iron bars are still holding well at 3.30c.; reinforcing bars are in fair demand at 3.15c. Structural shapes and plates are quiet. Sheets are in good demand.

Coke.—Shipments of by-product foundry coke this month have been from 10 to 15 per cent greater than in July, but demand for domestic grades has lagged. By-product egg coke has gone up 50c. a ton at Detroit, the new schedule being \$6.50 per net ton, delivered in Detroit, and \$6, ovens, for outside delivery. Nut size, however, will remain unchanged at \$6, delivered in Detroit, and \$5.50, ovens, for outside shipment. Prices in this district, especially in southern Indiana, are still being somewhat disturbed by low quotations made by a Southern by-product coke maker.

Old Material.—There is a firmer tone to the scrap market traceable almost directly to a better feeling among dealers. District steel plants are accepting moderate tonnages on contracts, while movement of foundry grades remains sluggish. Prices have not changed.

Dealers' buying prices per gross ton, f.o.b. cars, Cincinnati:

Heavy melting steel.....	\$11.00 to \$11.50
Scrap rails for melting....	10.75 to 11.25
Loose sheet clippings.....	8.50 to 9.00
Bundled sheets .....	9.00 to 9.50
Cast iron borings.....	8.00 to 8.25
Machine shop turnings....	7.50 to 8.00
No. 1 busheling .....	10.00 to 10.50
No. 2 busheling .....	6.00 to 6.50
Rails for rolling .....	12.50 to 13.00
No. 1 locomotive tires.....	12.75 to 13.25
No. 2 railroad wrought....	11.00 to 11.50
Short rails .....	15.75 to 16.25
Cast iron carwheels.....	11.00 to 11.50
No. 1 machinery cast.....	15.00 to 15.50
No. 1 railroad cast.....	12.75 to 13.25
Burnt cast .....	7.50 to 8.00
Stove plate .....	8.25 to 8.75
Brake shoes .....	9.50 to 10.25
Railroad malleable .....	11.50 to 12.00
Agricultural malleable ...	10.50 to 11.00



# Non-Ferrous Metal Markets

## Copper Quiet and Firm, Tin Actively Bought, Lead Prices Advanced, Zinc Unchanged

**Copper.**—Buying of copper is generally light both for domestic and foreign consumption. Domestic consumers have covered for close to 90 per cent of their September requirements and foreign users can buy on short notice out of stocks. Naturally, under such conditions the market is quiet and not much activity is looked for until after Labor Day. During the past week foreign buying has been normal, but domestic demands have fallen off, with no interest in October metal. Monday and Tuesday domestic business was somewhat more active due to unconfirmed reports of a pos-

	THE WEEK'S PRICES. CENTS PER POUND FOR EARLY DELIVERY					
	Aug. 28	Aug. 27	Aug. 25	Aug. 24	Aug. 23	Aug. 22
Lake copper, New York.....	14.75	14.75	14.75	14.75	14.75	14.75
Electrolytic copper, N. Y.*.....	14.50	14.50	14.50	14.50	14.50	14.50
Straits tin, spot, N. Y.....	47.50	47.25	.....	47.25	48.00	47.75
Lead, New York.....	6.40	6.40	6.30	6.30	6.30	6.20
Lead, St. Louis.....	6.22½	6.22½	6.10	6.10	6.10	6.00
Zinc, New York.....	6.60	6.60	6.60	6.60	6.60	6.60
Zinc, St. Louis.....	6.25	6.25	6.25	6.25	6.25	6.25

\*Refinery quotation; delivered price ¼c. higher.

sible shortage, but not much credence was given to these. Quotations are firmly unchanged at 14.75c., delivered in the Connecticut valley, at 14.87½c., delivered in the Central West and at 15c. c.i.f. usual European ports, the official quotation of Copper Exporters, Inc. Lake copper is quiet and steady at 14.75c. to 14.87½c., delivered.

**Tin.**—Sales for the week ended Saturday, Aug. 25, were the largest in some time, totaling approximately 2000 tons. The most active days were Aug. 20 and Aug. 21, when at least 700 tons changed hands on each day, followed by 300 tons on Aug. 22, about 100 tons on Aug. 23 and about 200 tons on Aug. 24. Consumers were very liberal buyers for all positions, with dealers buying only sparingly. Opinion is general that there is still a large quantity to be purchased by consumers for the last quarter. On Mon-

day about 300 tons changed hands, but Tuesday the market was quiet and firm with spot Straits tin quoted at 47.50c., New York. On Monday most of the buying was done by dealers, the first time they have been active in some time. Straits shipments to all countries up to Aug. 25 are reported as about 8200 tons, with the total for the month estimated at over 9000, indicating that supplies are coming liberally. Arrivals thus far this month have been 5605 tons, with 8385 tons reported afloat. Quotations in London Tuesday were lower than a week ago, with spot Standard quoted at £210, future Standard at £206 15s. and spot Straits at £213. The Singapore price was £210 15s.

**Lead.**—Two advances in the price of lead have been made by the American Smelting & Refining Co. in the last week. On Aug. 23 it raised its

### Metals from New York Warehouse

#### Delivered Prices Per Lb.

Tin, Straits pig.....	49.00c. to 50.00c.
Tin, bars.....	51.00c. to 52.00c.
Copper, Lake.....	15.75c.
Copper, electrolytic.....	15.50c.
Copper, casting.....	14.75c.
Zinc, slab.....	7.25c. to 7.75c.
Lead, American pig.....	7.50c. to 8.00c.
Lead, bar.....	9.25c. to 10.25c.
Antimony, Asiatic.....	12.50c. to 13.00c.
Aluminum No. 1 ingots for re-melting (guar'nt'd over 99% pure).....	25.00c. to 26.00c.
Alum. ingots, No. 12 alloy.....	24.00c. to 25.00c.
Babbitt metal, commerc'l grade.....	30.00c. to 40.00c.
Solder, ½ and ½.....	32.00c. to 33.00c.

### Metals from Cleveland Warehouse

#### Delivered Prices Per Lb.

Tin, Straits pig.....	53.25c.
Tin, bar.....	57.25c.
Copper, Lake.....	14.85c.
Copper, electrolytic.....	14.85c.
Copper, casting.....	14.00c.
Zinc, slab.....	8.00c.
Lead, American pig.....	6.75c. to 7.00c.
Lead, bar.....	9.50c.
Antimony, Asiatic.....	16.00c.
Babbitt metal, medium grade.....	18.50c.
Babbitt metal, high grade.....	56.50c.
Solder, ½ and ½.....	31.75c.

### Rolled Metals from New York or Cleveland Warehouse

#### Delivered Prices, Base Per Lb.

<b>Sheets—</b>	
High brass.....	19.25c.
Copper, hot rolled.....	24.00c.
Copper, cold rolled, 14 oz. and heavier.....	25.75c.
<b>Seamless Tubes—</b>	
Brass.....	24.12½c.
Copper.....	25.00c.
Brazed Brass Tubes.....	27.25c.
Brass Rods.....	17.00c.

#### From New York Warehouse

#### Delivered Prices, Base Per Lb.

Zinc sheets (No. 9), casks.....	10.00c. to 10.50c.
Zinc sheets, open.....	11.00c. to 11.50c.

## Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products have not changed since May 25. Zinc sheets are quoted at 9.75c., and lead full sheets at 10c. to 10.25c.

### List Prices, Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to 75c. per 100 Lb. Allowed on Shipments of 500 Lb. or Over

<b>Sheets—</b>	
High brass.....	19.25c.
Copper, hot rolled.....	23.50c.
Zinc.....	9.75c.
Lead (full sheets).....	10.00c. to 10.25c.

<b>Seamless Tubes—</b>	
High brass.....	24.12½c.
Copper.....	25.00c.

<b>Rods—</b>	
High brass.....	17.00c.
Naval brass.....	19.75c.

<b>Wire—</b>	
Copper.....	16.75c.
High brass.....	19.75c.
Copper in Rolls.....	22.50c.
Brazed Brass Tubing.....	27.25c.

### Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of Mississippi River and also to St. Louis on shipments to points west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide.....	33.00c.
Tubes, base.....	42.00c.
Machine rods.....	34.00c.

## Old Metals, Per Lb., New York

Buying prices represent what large dealers are paying for miscellaneous lots from smaller accumulators and selling prices are those charged customers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible.....	12.625c.	14.00c.
Copper, hvy. and wire.....	12.50c.	13.50c.
Copper, light and bottoms.....	10.75c.	11.75c.
Brass, heavy.....	7.00c.	8.25c.
Brass, light.....	6.00c.	7.50c.
Hvy. machine composition.....	9.75c.	10.75c.
No. 1 yel. brass turnings.....	8.75c.	9.50c.
No. 1 red brass or compos. turnings.....	9.00c.	10.00c.
Lead, heavy.....	5.00c.	5.50c.
Lead, tea.....	3.75c.	4.25c.
Zinc.....	3.00c.	3.50c.
Sheet aluminum.....	12.50c.	14.50c.
Cast aluminum.....	11.75c.	13.50c.

## Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Consumers' Doors in City Limits)

<b>Sheets—</b>		Base per Lb.
High brass.....	19.25c.	
Copper, hot rolled.....	23.50c.	
Copper, cold rolled, 14 oz. and heavier.....	25.75c.	
Zinc.....	10.00c.	
Lead, wide.....	9.75c.	
<b>Seamless Tubes—</b>		
Brass.....	25.62½c.	
Copper.....	26.50c.	
Brass Rods.....	17.00c.	
Brazed Brass Tubes.....	27.25c.	

contract price from 6.20c. to 6.30c. and on Monday, Aug. 27, from 6.30 to 6.40c., New York. Buying during the past month has been quite heavy, and the statistical position of the market as to world production and as to stocks has been favorable to the advance. Most consuming lines have been buyers, all quite heavily for September, with some sales for October. The Western market also is active and higher at 6.22½ to 6.25c., St. Louis, for September-October, with some spot metal available at 6.20c., St. Louis.

**Zinc.**—Demand for prime Western zinc continues normal but is not particularly heavy. The total month's business will average pretty close to that of recent months. Inquiry is not active, but evidently business is being done daily between producers and consumers, which makes the zinc

market somewhat different in character from that of the others, formal inquiries often being dispensed with. Firmness of prices continues a feature, with prime Western available through October at 6.25c., East St. Louis, or 6.60c., New York. Ore prices at Joplin were unchanged Saturday, Aug. 25, at \$40, with production about 12,800 tons. Sales were about 8340 tons and shipments were about 10,600 tons, bringing stocks on Aug. 25 to about 40,900 tons, against 38,700 tons the week before.

**Antimony.**—With consumer buying light, the market is a little easier and Chinese metal is quoted at 10.25c., New York, duty paid, for all positions.

**Nickel.**—Wholesale lots of ingot nickel are available at 35c., with shot nickel at 36c. and electrolytic nickel at 37c. per lb.

**Aluminum.**—Virgin metal, 98 to 99 per cent pure, is quoted at 23.90c. per lb., delivered.

#### Non-Ferrous Metals at Chicago

CHICAGO, Aug. 28.—Purchases of copper are of moderate size but steady. Demand for zinc and lead is more active, following advances in prices. The old metal market is quiet.

Prices, per lb., in carload lots: Lake copper, 15.25c.; tin, 48.50c.; lead, 6.35c.; zinc, 6.35c.; in less-than-carload lots, antimony, 12c. On old metals we quote copper wire, crucible shapes and copper clips, 10.75c.; copper bottoms, 9.75c.; red brass, 9.50c.; yellow brass, 7.25c.; lead pipe, 4.75c.; zinc, 3.50c.; pewter, No. 1, 30c.; tin foil, 36.25c.; block tin, 45.25c.; aluminum, 12c.; all being dealers' prices for less-than-carload lots.

## OBITUARY

JAMES BOWRON, chairman of the board of the Gulf States Steel Co., Birmingham, died suddenly at his home in that city on Aug. 25, of heart disease, aged 84 years. He was born at Stockton-on-Tees, Durham County, England, and, before coming to the United States in 1877, he was engaged in a number of business enter-



JAMES BOWRON

prises in that country. Here he became associated with the South Pittsburgh Pipe Works, South Pittsburgh, Tenn., and nine years later became its president. Later he was identified for many years with the Tennessee Coal, Iron & Railroad Co., having left that company to become associated with the Southern Iron & Steel Co. He served as president of this company and later as receiver, prior to its reorganization as the Standard Steel Co. in 1913. In December of that year the company became the Gulf States Steel Co. and Mr. Bowron served as its president until 1921,

when he retired to the less active duties of chairman of the board.

In the eighteen-nineties, when N. Baxter, Jr., was president of the Tennessee Coal, Iron & Railroad Co., Mr. Bowron was secretary of the company, later treasurer and still later first vice-president and treasurer. In recounting on various public occasions the stressful conditions under which pig iron manufacture was carried on in the South, Mr. Bowron spoke feelingly of the financial anxieties of officers of the Tennessee company. Now and then when checks went out from the company headquarters at Nashville the treasurer took an early train for New York to arrange the financing necessary to meet them. Speaking at the Birmingham meeting of the American Iron and Steel Institute in October, 1914, Mr. Bowron said of those times:

Heavy tonnages of iron were carried in warrant yards on borrowed money. Pig iron brokers made more money than the producers, either out of their sales commissions or by interest on the money which they advanced to the shippers against their bills of lading, sometimes every week and sometimes every day. Abnormal prices were made, which only covered in some places the cash out of pocket cost. The writer can remember one sale of 5000 tons of No. 2 foundry at \$6.25 spot cash, immediate delivery in one block, to meet a pay roll; another commercial transaction, a cargo of No. 4 foundry for Japan at \$5.75, the remainder of the sailing ship being filled up with coke. Needless to say such prices provided nothing for the depreciation of the plants which were standing still, or for the replacement of minerals which were being taken from the richest and most accessible points.

Mr. Bowron's stalwart figure will be recalled by many attendants at foundrymen's conventions in the eighteen-nineties and early nineteen-hundreds, and by his fellow members of the American Iron and Steel Institute in more recent years. He took

a pride in referring to his athletic proclivities in his younger days in England, and in his seventies his erect form and ruddy countenance made the common appraisal of his age many years younger.

A. C. RULOFSON, of the A. C. Rulofson Co., San Francisco, Portland and Los Angeles, Pacific Coast representative for the Pittsburgh Steel Co., Illinois Malleable Iron Co., United States Chain & Forge Co. and other companies, died on Aug. 11 at the age of 74,



A. C. RULOFSON

at his home in Oakland, Cal. He was one of the pioneers in the hardware and iron and steel business on the Pacific Coast, his first connection having been with the old firm of Huntington-Hopkins Co., San Francisco. For many years he was connected with Baker & Hamilton and resigned from that company as manager in 1904 to form his own company.

ERNEST J. BOSSERT, proprietor of the Bossert Machine Co., Cincinnati, died at his home in that city on Aug. 27. He was 59 years of age and had been engaged in the manufacture of machinery for 20 years.



## PERSONAL

**WILLIAM J. TEEMER**, for the last 18 years associated with the National Tube Co. both in the operating and sales departments, has been appointed manager of sales of the Delaware Seamless Tube Co., Auburn, Pa., subsidiary of the Allegheny Steel Co.

**CHARLES J. ARTHUR**, recently sales engineer for the A. R. Amos, Jr., Co., Philadelphia, has been added to the Philadelphia sales organization of the Wagner Electric Corporation, St. Louis. Since his graduation from the University of Pennsylvania in 1923 he has had experience in construction, inside maintenance and operation, with the American Telephone & Telegraph Co.; in transmission, distribution, design and layout, with the Philadelphia Electric Co.; in laboratory research work, with the Western Electric Co., and in industrial sales engineering, with the Amos organization.

**W. FRANK ROBERTS**, for 10 years general manager of the Sparrows Point, Md., plant of the Bethlehem Steel Co., has resigned. He has been succeeded by **STEWART J. CORT**, who has been identified with the company's Bethlehem, Pa., plant for a number of years.

**A. E. HERZBERG**, manager of the transformer sales division of the Wagner Electric Corporation, St. Louis, who has been a major in the United States Army Reserve, has been promoted to the grade of lieutenant-colonel.

**WILLIAM FAIRFIELD WHITING**, president of the Whiting Paper Co., Holyoke, Mass., who has been appointed by President Coolidge to succeed **HERBERT HOOVER** as Secretary of Commerce, has been a prominent figure in New England industrial, railroad and financial organizations for many years. He was born at Holyoke in 1864 and attended Williston Seminary and Amherst College, having been graduated from the latter institution in 1886. He immediately became associated with his father in the paper manufacturing concern, which had been founded in 1865, and has been identified with the business ever since. In accepting the appointment Mr. Whiting stated that he expected to pursue the policies inaugurated by Mr. Hoover.

**P. S. MENOUGH** has been made assistant to the president of the Duraloy Co., Pittsburgh. He is a graduate of Cornell University, and was for nine years chief engineer of the Eastern Malleable Iron Co., Bridgeport, Conn.

**FRANK W. CRAMER** has been appointed general electrical superintendent of the Republic Iron & Steel Co., Youngstown. He was formerly as-

sistant superintendent of the electrical department at the Cambria works, Bethlehem Steel Co., Johnstown, Pa., and is a graduate of Pennsylvania State College. He was identified with Pennsylvania power companies before going with the Midvale Steel & Ordnance Co. at Johnstown in 1917. Mr. Cramer is first vice-president of the Association of Iron and Steel Electrical Engineers, in the affairs of which he has been very active.

**GEORGE BATTY**, recently a consultant on steel foundry practice at Detroit, has been appointed research director of the Steel Castings Development Bureau, 500 Stock Exchange Build-



GEORGE BATTY

ing, Philadelphia, and will be available for consultation at that address on Fridays and Saturdays. The bureau, which is financing an investigation of the manufacture of steel castings with view toward improving the quality of the product, is supported by the following companies: Atlantic Steel Castings Co., Chester, Pa.; Crucible Steel Casting Co., Lansdowne, Pa.; Treadwell Engineering Co., Easton, Pa.; Pennsylvania Electric Steel Castings Co., Hamburg, Pa.; Dodge Steel Co., 6501 Tacony Street, Philadelphia; Riverside Steel Castings Co., Newark, N. J.; Deemer Steel Casting Co., New Castle, Del., and Empire Steel Castings Co., Reading, Pa. Mr. Batty attended the Sheffield Scientific School, which later became a part of Sheffield University, Sheffield, England. For the next 11 years he was engaged in capacities of steel maker or works manager in a number of Sheffield companies manufacturing tool and special steels by the crucible and electric processes. In 1920 he spent five months in Detroit in a consulting capacity with the Ford Motor Co., and upon his return to England, entered upon the production of steel castings. In 1923 he was ap-

pointed works manager of the National Steel Foundry, Ltd., in Scotland and later became technical director of that company. He returned to Detroit to engage in private consulting work in 1927.

**H. C. BUSCH**, who has been president of the Cisco Machine Tool Co., Cincinnati, since its inception, has retired and has been succeeded as president by **RALPH B. BUSCH**, who has been vice-president. H. C. Busch was also president of the Cincinnati Iron & Steel Co., which was consolidated with Joseph T. Ryerson & Sons, Inc., several years ago, but has been retiring from his active business interests in recent years to devote more time to travel. Ralph B. Busch joined the Cisco organization after leaving Cornell University seven years ago.

**A. S. GOULD**, for 10 years sales manager of the Oster Mfg. Co., Cleveland, has been elected secretary of the company and will continue in charge of sales. He succeeds **ROGER TEWKSBURY** as secretary, the latter having been elected vice-president and treasurer. R. B. TEWKSBURY continues as president of the company.

**LOUIS K. LIGGETT**, heretofore chairman of the board of directors of the Winchester Repeating Arms Co., New Haven, Conn., has been made chairman of the executive committee in place of **FRANK G. DREW**, president, who becomes president of the board of directors. **WILLIAM A. TOBLER**, vice-president and general manager, is now president. **LESLIE R. THOMPSON** is vice-president and treasurer.

**C. L. WARWICK**, secretary-treasurer American Society for Testing Materials, Philadelphia, will visit in October the principal industrial and engineering centers of the Pacific Coast to discuss the development of the society's interests in that territory and to establish closer contacts with Western members. Despite the 3000 miles separating the Pacific Coast from the society's headquarters, that district stands fourth among nine into which the country is divided, in proportion of A. S. T. M. membership to population and to capital invested in manufacturing industries.

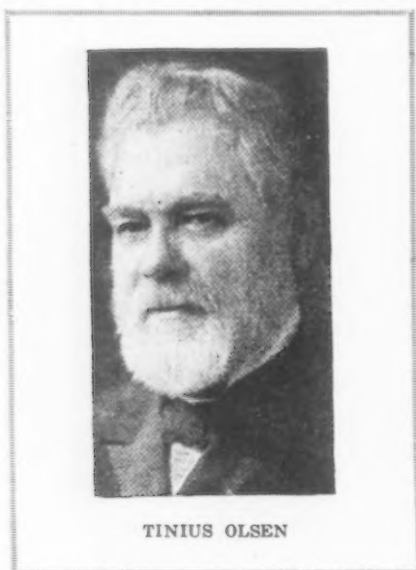
**WILLIAM B. PRESCOTT**, formerly manager of the raw materials department, Youngstown Sheet & Tube Co., has been appointed manager of sales for the Koppers Coal Co., a subsidiary of the Koppers Co., 379 Union Trust Building, Pittsburgh.

**STANLEY GRAND-GIRARD**, formerly electrical engineer for the Republic Iron & Steel Co., Youngstown, has been appointed electrical superintendent of the Sharon Steel Hoop Co., Sharon, Pa., succeeding the late John Barker.

**W. A. MAXWELL, Jr.**, who has been production manager of the Colorado Fuel & Iron Co., Denver, since May 1, 1927, has been elected vice-presi-

dent and production manager and will have charge of all manufacturing, mining and related activities of the company. He has also been elected vice-president of the Rocky Mountain Coal & Iron Co., the Colorado Supply Co. and the Colorado Realty Holding Co., subsidiaries of the Fuel & Iron company. Before going with the Colorado company Mr. Maxwell was general superintendent of the Inland Steel Co., Chicago.

THORSTEN Y. OLSEN, vice-president and treasurer Tinius Olsen Testing Machine Co., 500 North Twelfth Street, Philadelphia, will sail from



TINIUS OLSEN

New York for Europe on Sept. 1, to attend the unveiling on Sept. 16, of a statue of his father, TINIUS OLSEN, at the latter's birthplace, Kongsberg, Norway. The cost of the statue has been met by popular subscription in Norway in recognition of Mr. Olsen's philanthropy in the city of his birth, and his assistance to engineering progress in Norway. He has already been tendered many honors and has been knighted by the King of Norway and made a member of the Order of St. Olaf. Tinius Olsen is living, but because of his advanced age, 83 years in September, it was deemed best for him not to make the long journey to his birthplace. Thorsten Y. Olsen, his son, will therefore go as representative of his father and will be accompanied by his wife and brother. They will be abroad about 30 days, and will also visit Sweden and Denmark.

A. E. LEWIS has been appointed vice-president in charge of the Cleveland district of the Great Lakes Chemical Works, Detroit, and will have headquarters at a new office which is being opened at 2509 Terminal Tower Building, Cleveland.

J. M. CURLEY has been appointed Eastern sales representative of the A. Finkl & Sons Co., Chicago, manufacturer of die blocks and drop forge shop accessories, and will maintain headquarters at 292 Main Street, Cam-

bridge, Mass. He succeeds the late W. L. GOODRICH, with whom he was closely associated for many years in the sales of the company's products.

CHARLES BOND, president of the Charles Bond Co., Philadelphia, maker of power transmitting machinery and leather belting, sailed for England on Aug. 11. JOHN R. GRUNDY, vice-president of the company, also sailed for England on Aug. 24 and will probably return in October.

## Steel Treaters' Western Metal Congress and Exposition

The American Society for Steel Treating will hold a semi-annual meeting in Los Angeles, Jan. 14 to 18, 1929. In connection with this, there will be held the Western Metal Congress and the Western States Metal and Machinery Exposition.

Five days will be devoted to technical sessions on the making, working and treating of metals. The exposition will include displays of machinery, materials and appliances, which will portray the cycle of the metal industry from the raw material to the finished product. In many respects it will not be unlike the society's annual metal exposition to be held in Philadelphia, Oct. 8 to 12.

The meetings and exposition will be held in the Shrine auditorium in Los Angeles. A dozen or more technical societies of the Western part of the country will take part in the program in presenting papers.

## New England Industries Meeting Oct. 1 to 3

Materials handling, machine shop practice, management, education and training for industries, aeronautics and applied mechanics are among the topics that will be discussed at the New England Industries meeting, which will be held in Boston, Oct. 1, 2 and 3.

Simultaneous sessions on education and training for the industries, and materials handling, will be held on the afternoon of Oct. 1. Speakers at the training session, according to announcement by the American Society of Mechanical Engineers, include C. K. Tripp, supervisor of apprentices General Electric Co., Lynn, Mass., and W. S. Berry, director of training Scovill Mfg. Co., Waterbury, Conn. D. W. Coe, vice-president and general sales manager of the Canadian Mead-Morrison Co., Ltd., Montreal, Canada, and C. G. Spencer, Baker & Spencer, Inc., New York, will speak on materials handling.

The morning session of Oct. 2 is to be devoted to aeronautics, with papers by Sumner Sewall, traffic manager of the Colonial Air Line, A. Willgoos, chief engineer Pratt & Whitney Air-

L. GERALD FIRTH, general manager Firth-Sterling Steel Co., McKeesport, Pa., sailed last week on a European trip, a month of which will be spent at the Sheffield works of the associated company, Thomas Firth & Sons, Ltd., Sheffield, England.

ROBERT H. IRONS, president Central Iron & Steel Co., Harrisburg, Pa., sailed for Europe last week on the Aquitania and will not return until November.

craft Corporation, and F. W. Mosinger, Norma-Hoffman Bearing Corporation. Papers by A. Dinnick, professor of mechanics, Institute of Mines, Dniepropetrovsk, Soviet Russia, and J. P. DenHartog, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., are planned for the applied mechanics session. A second session on applied mechanics will be held Oct. 3, with D. A. Gurney, ordnance department, United States Army, and A. M. Wahl, research department, Westinghouse Electric & Mfg. Co., as speakers.

J. H. George, vice-president Morgan Construction Co., Worcester, and W. J. Fortuno, National Shawmut Bank, Boston, will be among the speakers at the management engineering session.

The machine shop session will feature a symposium on machine shop work for textile mills. There will also be a separate paper on internal grinding by A. M. Drake, chief engineer Greenfield Tap & Die Corporation, Greenfield, Mass. R. J. Cullen and H. S. Walton of the Boston & Albany Railroad, will be speakers at a railroad session.

## Varied Program for National Fuels Meeting

Study of fuel characteristics, the industrial applications of fuel, heat transfer, powdered fuel uses, refractories and stokers, marine practice, central station methods and smoke abatement are the principal topics scheduled for discussion at the second national fuels meeting to be held Sept. 17 to 20 at the Hotel Cleveland, Cleveland, under the auspices of the fuels division of the American Society of Mechanical Engineers.

The meeting will be opened by an address by Thomas T. Baker, president Carnegie Institute of Technology, Pittsburgh, on Monday morning, Sept. 17, which will be followed during the remainder of that day and Tuesday by technical sessions of the various divisions. The final day of the meeting will be given over entirely to smoke abatement. Plant inspection trips include visits to the Fairmont pumping station of the Cleveland Water Works, the Avon station of the Cleveland Electric Illuminating Co. and to the three Cleveland plants of the American Steel & Wire Co.



# Exports and Imports Both Decline

July Exports, with Loss of Only 3 Per Cent, Were Far Above 1927—Import Reduction Was 27 Per Cent

WASHINGTON, Aug. 27.—Exports of iron and steel products from the United States in July aggregated 253,336 gross tons, a drop of 8716 tons or 3.3 per cent under June, when the total was 262,052 tons. Imports in July, amounting to 47,830 tons, showed a large decline, falling off 17,989 tons or 27.3 per cent from June's total of 65,819 tons. The daily export movement in July averaged 8172 tons, compared with 8735 tons in June. The average daily import movement for July was 1543 tons, against 2194 tons in June.

Exports in July, however, were considerably larger than those for July of last year, when the total was 190,532 tons. For the seven months ended with July, the total was 1,612,078 tons in 1928, against 1,323,959 tons in 1927. Imports in July of last year, amounting to 61,112 tons, were 13,382 tons above the movement of July, 1928. For the seven months ended with July, imports totaled 437,725 tons in 1928, against 444,596

## United States Imports of Iron and Steel Products in July

From	Gross Tons
Austria .....	26
Belgium .....	10,593
Czechoslovakia .....	16
Denmark .....	1
France .....	10,882
Germany .....	8,917
Italy .....	139
Netherlands .....	2,659
Norway .....	400
Sweden .....	1,972
United Kingdom .....	3,028
<i>Europe</i> .....	<i>38,632</i>
Canada .....	6,010
Mexico .....	64
Other British West Indies .....	100
<i>America</i> .....	<i>6,174</i>
British India .....	2,994
Japan .....	30
<b>Total</b> .....	<b>47,830</b>

tons for the corresponding period of last year.

Although the July export movement was less than that of June, decreases were registered in only 18 of the 39

classes into which the trade is divided, 21 having shown gains. The largest gain was made in ingots and semi-finished steel, which increased 10,822 tons to 16,020 tons over the June total of 5198 tons. Galvanized sheets, whose July total of exports was 15,341 tons, showed a gain of 4821 tons over the 10,420 tons exported in June. The decreases were small, with two exceptions. Exports of scrap in July, the largest movement of any of the classes, totaled 43,783 tons, a drop of 21,135 tons from the 64,918 tons exported in June. Plain structural shapes to the amount of 14,509 tons were exported in July, a decline of 4847 tons from the 19,356 tons exported in June.

Exports of scrap in July went principally to Poland, Canada, Italy and Japan, the amounts being in the order named. Next to scrap the largest class exported in July was boiler tubes and welded pipe, with a total of 24,214 tons. Of the 10,189 tons of casing and oil line pipe exported, 2797 tons

## Exports of Iron and Steel from the United States

(In Gross Tons)

	July		Seven Months Ended July	
	1928	1927	1928	1927
Pig iron .....	8,598	4,182	33,927	26,721
Ferromanganese .....	1,137	98	5,998	391
Scrap .....	43,783	17,499	294,238	122,209
<i>Pig iron, ferroalloys and scrap</i> .....	<i>53,518</i>	<i>21,779</i>	<i>334,163</i>	<i>149,321</i>
Ingot, blooms, billets, sheet bar, skelp .....	16,020	10,616	72,950	49,951
Wire rods .....	3,638	679	22,117	9,291
<i>Semi-finished steel</i> .....	<i>19,658</i>	<i>11,295</i>	<i>95,067</i>	<i>59,242</i>
Steel bars .....	13,899	9,345	84,667	65,921
Alloy steel bars .....	1,102	423	8,594	3,452
Iron bars .....	471	597	2,289	3,113
Plates, iron and steel .....	14,648	11,209	86,374	81,561
Sheets, galvanized .....	15,341	15,095	90,417	101,050
Sheets, black steel .....	19,150	16,173	109,461	106,402
Sheets, black iron .....	1,355	1,248	8,843	10,143
Hoops, bands, strip steel .....	4,988	3,176	32,685	28,547
Tin plate, terne plate .....	21,528	19,845	146,627	172,612
Structural shapes, plain material .....	14,509	13,144	104,382	79,366
Structural material, fabricated .....	14,156	4,263	56,450	37,428
Steel rails .....	11,079	14,728	120,665	112,645
Rail fastenings, switches, frogs, etc. ....	2,487	2,365	30,061	20,517
Boiler tubes, welded pipe and fittings .....	24,214	24,779	145,327	172,668
Plain wire .....	3,265	3,637	26,966	19,540
Barbed wire and woven wire fencing .....	5,542	5,385	43,969	28,634
Wire cloth and screening .....	216	240	1,062	1,370
Wire rope .....	386	318	2,964	2,724
Wire nails .....	1,425	1,193	10,032	4,765
Other nails and tacks .....	837	819	6,102	4,818
Horseshoes .....	64	38	269	285
Bolts, nuts, rivets and washers, except track .....	1,262	1,206	7,762	6,959
<i>Rolled and finished steel</i> .....	<i>171,924</i>	<i>149,226</i>	<i>1,125,968</i>	<i>1,064,520</i>
Cast iron pipe and fittings .....	2,533	3,010	19,895	16,130
Car wheels and axles .....	944	1,422	8,568	11,027
Iron castings .....	776	930	7,162	6,729
Steel castings .....	1,097	545	6,337	4,732
Forgings .....	1,168	540	6,029	3,269
<i>Castings and forgings</i> .....	<i>6,518</i>	<i>6,447</i>	<i>47,991</i>	<i>41,887</i>
All other .....	1,718	1,785	8,889	8,989
<b>Total</b> .....	<b>253,336</b>	<b>190,532</b>	<b>1,612,078</b>	<b>1,323,959</b>

## Imports of Iron and Steel into the United States

(In Gross Tons)

	July		Seven Months Ended July	
	1928	1927	1928	1927
Pig iron .....	6,055	10,377	81,350	70,696
Ferromanganese* .....	2,891	2,724	27,296	15,152
Ferrosilicon† .....	332	193	2,424	5,856
Ferrochrome‡ .....	59	...	397	382
Scrap .....	3,688	3,260	26,529	37,182
<i>Pig iron, ferroalloys and scrap</i> .....	<i>13,025</i>	<i>16,554</i>	<i>137,996</i>	<i>129,268</i>
Steel ingots, blooms, billets and slabs .....	1,217	1,111	13,083	7,656
Iron blooms, slabs, etc. ....	...	...	4	...
Wire rods .....	595	891	10,012	7,490
<i>Semi-finished steel</i> .....	<i>1,812</i>	<i>2,002</i>	<i>23,099</i>	<i>15,146</i>
Rails and splice bars .....	1,534	600	11,180	10,714
Structural shapes .....	11,192	12,606	99,878	87,942
Boiler and other plates .....	198	188	3,355	2,728
Sheets and saw plates .....	1,160	1,645	15,999	9,068
Steel bars .....	4,992	5,697	55,304	56,522
Bar iron .....	35	425	1,385	2,807
Hoops, bands and cotton ties .....	893	5,447	11,423	20,139
Tubular products (wrot.) .....	2,918	6,693	23,973	39,185
Nails, tacks, staples .....	1,020	832	4,863	4,006
Tin plate .....	159	31	751	923
Bolts, nuts, rivets and washers .....	11	47	154	184
Round iron and steel wire .....	408	372	2,430	2,723
Barbed wire .....	226	125	1,975	2,971
Flat wire; strip steel .....	132	185	1,294	1,606
Steel telegraph and telephone wire .....	10	1	163	31
Wire rope and strand .....	168	157	971	1,520
Other wire .....	42	36	320	291
<i>Rolled and finished steel</i> .....	<i>25,098</i>	<i>35,087</i>	<i>235,418</i>	<i>243,360</i>
Cast iron pipe .....	7,731	7,381	39,248	54,926
Castings and forgings .....	164	88	1,964	1,796
<b>Total</b> .....	<b>47,830</b>	<b>61,112</b>	<b>437,725</b>	<b>444,596</b>
Manganese ore* .....	21,447	27,948	105,364	207,833
Iron ore .....	183,256	252,162	1,415,669	1,575,594
Magnesite (dead burned) .....	3,912	3,937	31,386	53,524

\*Manganese content only.  
†Silicon content only.  
‡Chromium content only.

### Destination of Iron and Steel Exports from the United States (In Gross Tons)

Country of Destination	July, 1928	January Through July		Country of Destination	July, 1928	January Through July	
		1928	1927			1928	1927
<b>North and Central America and West Indies</b>				<b>Europe (Continued)</b>			
Canada and Newfoundland.....	121,340	771,929	653,574	Italy .....	8,274	52,375	37,142
Cuba .....	100,341	635,519	501,258	Netherlands .....	99	1,432	1,821
Mexico .....	6,289	37,524	51,999	Russia .....	407	1,976	4,196
Guatemala .....	6,976	46,774	52,609	United Kingdom .....	5,010	31,464	43,181
Panama .....	264	6,099	4,750	Other Europe .....	16,365	80,971	20,008
Salvador .....	1,192	9,700	12,550	<b>Far East</b>			
British West Indies.....	307	2,193	2,924	British Malaya .....	60,189	391,178	324,442
Other West Indies.....	514	4,882	8,642	China .....	442	3,856	6,487
Other Central America.....	4,398	19,433	11,194	Dutch East Indies.....	6,723	64,258	35,751
	1,059	9,805	7,648	India and Ceylon.....	3,690	17,741	23,701
<b>South America</b>				Japan and Chosen.....	764	14,326	16,059
Argentina .....	38,366	257,891	219,120	Kwangtung .....	28,589	210,161	167,503
Brazil .....	6,544	57,743	51,289	Philippine Islands .....	1,498	4,479	15,578
Chile .....	9,527	50,935	46,594	Australia .....	11,093	55,128	33,962
Colombia .....	4,157	40,292	19,879	New Zealand .....	1,610	9,195	16,556
Peru .....	7,391	42,597	37,323	Other Asia and Far East.....	164	1,211	725
Uruguay .....	900	14,288	22,239	<b>Africa</b>			
Venezuela .....	354	5,438	7,161	British South Africa .....	1,140	9,045	12,113
Other South America.....	9,239	43,209	32,974	Egypt .....	333	3,814	5,258
	254	3,389	1,661	Mozambique .....	323	3,406	2,861
<b>Europe</b>				Other Africa .....	173	1,035	805
Belgium .....	32,301	182,035	114,710	<b>Total</b>			
France .....	1,690	8,987	2,604		253,336	1,612,078	1,323,959
Greece .....	440	2,946	3,361				
	16	1,884	2,397				

went to Venezuela, 1640 tons to Colombia, 1008 tons to the Dutch West Indies and 957 tons to Java and Madura. Of the 6603 tons of welded black pipe exported, 2701 tons went to Japan, 803 tons to Venezuela, 687 tons to Canada and 500 tons to Mexico. Galvanized welded pipe exports were 4777 tons, of which 1601 tons went to the Philippine Islands.

Exports of steel plates in July amounted to 14,648 tons, of which 12,160 tons went to Canada, 433 tons to Japan and 125 tons to Cuba. Of the galvanized sheet exports, 2857 tons went to the Philippine Islands, 2728 tons to Canada, 1347 tons to Colombia and 859 tons to Mexico. Japan took 8342 tons of the 19,160 tons of black steel sheets exported, while Canada took 8009 tons and the Philippine Islands, 548 tons. Of the 11,079 tons of steel rails exported, Canada took 2863 tons, Brazil, 2638 tons, the Philippine Islands, 2424 tons, and Cuba, 776 tons. Japan took only 418 tons. Canada was the destination of 7663 tons of 13,899 tons of steel bars exported, while the United Kingdom took 2215 tons. Exports of tin plate, amounting to 21,528 tons, were widely distributed throughout the world. Canada took 5601 tons; Japan, 4807 tons; China, 2930 tons; and Argentina, 1937 tons. Canada was the destination of 12,918 tons of heavy plain structural material.

As usual, Canada was the principal export market for American steel, taking a total of 100,240 tons, while Japan ranked second, taking 28,093 tons.

The drop in imports was reflected in 18 of the 27 classes into which the import trade is divided. It is believed that the decline was due, partially at least, to the rising prices in Europe, making it more difficult to penetrate the American market. There was a reduction of 5744 tons in imports of pig iron in July, which amounted to 6055 tons, against 11,799 tons in June. British India supplied 2994 tons, while 2325 tons came from the Netherlands. Scrap imports were

3688 tons, a drop of 4027 tons from the 7715 tons imported in June. Imports of structural shapes, amounting to 11,192 tons, showed a decline of 3246 tons from the 14,438 tons imported in June. But for the seven months ended with July the total imports of structural shapes were 99,898 tons, an increase of 11,936 tons over the 87,942 tons imported during the corresponding period of 1927.

Of the July imports of structural material, 5432 tons came from Belgium, 3472 tons from Germany and 2166 tons from France. Cast iron pipe, ranking second to structural shapes in July, showed a movement of 7731 tons, of which 5933 tons came from France and 1791 tons from Belgium. Of the 4992 tons of steel bars

imported, 1554 tons came from Belgium, 1522 tons from Germany, 876 tons from France and 686 tons from Sweden. Of the 2891 tons of ferro-manganese imported, 1739 tons came from Canada, 757 tons from the United Kingdom and 279 tons from Norway. Soviet Russia supplied 15,592 tons of the 21,447 tons of manganese ore imported, while 3512 tons came from Brazil and 1799 tons came from India.

France was the source of the largest imports in July, furnishing 10,882 tons. This was the first time in many months that Belgium was exceeded as the principal source of importations. Imports from Belgium amounted to 10,592 tons. Germany was third, with 8917 tons.

### Continued Shrinkage in Iron Ore Imports

IMPORTS of iron ore into the United States in July are reported by the Department of Commerce at 183,256 gross tons, compared with 188,892 tons in June and 211,270 tons in May. The July imports are the smallest since March and are 27 per cent lower than the 252,162 tons of July, 1927. Imports in the first seven months of the year have been 1,451,669 tons, a reduction of about 8 per cent from the 1,575,594 tons of last year.

In spite of the reduction in the to-

tal, imports from Chile, which is the leading source of supply, showed a gain of nearly 6 per cent, reaching 817,500 tons. French Africa in second position showed a gain also, as did Canada and Spain. The bulk of the loss was felt by Sweden and was due undoubtedly to the strike at the Swedish mines. The reduction of Swedish imports in the seven months was about 87 per cent. There was a falling off also of about one-quarter in imports from Cuba.

Details of the July shipments and of those of the first seven months, with comparisons for last year, are shown in the table.

### SOURCES OF AMERICAN IMPORTS OF IRON ORE (In Gross Tons)

	July		Seven Months Ended July	
	1928	1927	1928	1927
Chile .....	102,008	104,400	817,500	772,300
Cuba .....	11,000	27,613	190,286	250,613
Spain .....	4,300	.....	16,203	3,918
Sweden .....	.....	57,125	19,614	153,253
French Africa .....	40,760	44,013	282,131	263,044
Canada .....	1,596	3,581	44,322	7,790
Other countries .....	23,600	15,430	81,613	124,675
Total.....	183,256	252,162	1,451,669	1,575,594



# German Domestic Business Declines

Exports Increasing—French Mills Well Filled and Seeking More Labor—British Exports Small Except in Pig Iron

(By Cable)

LONDON, ENGLAND, Aug. 27.

THE outlook for Cleveland iron is regarded more favorably, although business generally is still quiet. Buyers in Scotland, however, are reported negotiating for a large tonnage. Prices are firm and recession is considered unlikely as Palmer's Shipbuilding & Iron Co., which is outside the Cleveland makers' association, has closed its Jarrow works and is out of the market.

Hematite demand has improved slightly and prices are tending to higher levels. Foreign ore is quiet, with quotations steady.

Finished iron and steel in heavy sizes is generally dull, especially for export, but domestic users are supplying works with numerous orders for engineering and structural materials. Robert Heath & Lowmoor is closing the Stafford Iron & Steel Co. plant Sept. 8, the company being controlled by a receiver.

Welsh tin plate makers have raised the minimum price to 18s. (\$4.37) per base box f.o.b. works port, largely to combat the efforts of some buyers to obtain lower prices. Consumers' interest is increasing and good business is expected to develop. The report that 1,000,000 boxes of oil can tin plate had been placed with Welsh makers by Eastern consumers lacks confirmation.

Galvanized sheets are quiet in the Indian trade, but other markets are fair buyers of small quantities. Black sheets are inactive.

Continental markets are strong, although buying by traders in this country is light. Continental mills are reported to have booked large orders for direct export and order books are well filled.

Luxemburg production in July was 224,800 tons of pig iron and 207,600 tons of raw steel. The German steel output in July was 1,311,000 tons.

ders because they cannot execute them for sufficiently early delivery.

The domestic pig iron market is strong and demand is good, but export prices are lacking in firmness as a result of continued competition from British producers. In September, the Société des Acieries de France expects to blow in a new blast furnace at its Isbergues works, where a new light-gage sheet mill has been constructed.

Export demand for semi-finished steel is good, and some shortage of supplies is beginning to appear. It is difficult to obtain blooms at less than £4 13s. (\$22.60) per ton, and billets are firm at £4 15s. (\$23.09) per ton, with £4 15s. 6d. (\$23.21) per ton being asked by some mills. Sheet bars are quoted at £4 18s. (\$23.82), f.o.b. Antwerp.

Prices on beams have receded slightly on some sizes, and current quotations range from £4 17s. 6d. per ton (1.07c. per lb.) for normal specifications to £4 18s. per ton (1.08c. per lb.) for British material. Steel bars are quoted at £5 16s. 6d. per ton (1.28c. per lb.), but mills are well booked with orders and when early September delivery is specified 1s. (24c.) per ton is more usually asked.

In the domestic market the trend of prices continues upward, and some large transactions completed early this month have served to strengthen this movement. Certain mills, which recently appeared willing to accept comparatively low prices to obtain a

## French Market Much Stronger

Domestic Prices Still Advancing—Exports Good Except in Pig Iron Where British Competition Is Keen

PARIS, FRANCE, Aug. 13.—All iron and steel markets are quite active despite the midsummer holiday period. Prices continue to advance, and pro-

ducers are beginning to complain of a shortage of labor, voicing some objection to the 8-hr. day law, which they claim forces them to refuse or-

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.86 per £ as follows:

Durham coke, del'd.....	£0 17½s.		\$4.25	
Bilbao Rubio ore.....	1 2	to £1 2½s.	5.35	to \$5.48
Cleveland No. 1 fdy.....	3 8½	to £3 9½s.	16.64	to \$16.89
Cleveland No. 3 fdy.....	3 6		16.04	
Cleveland No. 4 fdy.....	3 5		15.80	
Cleveland No. 4 forge.....	3 4½		15.68	
Cleveland basic (nom.)...	3 5		15.80	
East Coast mixed.....	3 10		17.11	
East Coast hematite.....	3 10½		17.23	
Rails, 60 lb. and up.....	7 15	to 8 5	37.66	to 40.10
Billets.....	6 0	to 6 15	29.16	to 32.81
Ferromanganese.....	13 15		66.83	
Ferromanganese (export)	13 0	to 13 5	63.18	to 64.39
Sheet and tin plate bars,				
Welsh.....	6 0		29.16	
Tin plate, base box.....	0 18	to 0 18½	4.37	to 4.43
Black sheets, Japanese				
specifications.....	13 7½		65.00	
Ship plates.....	7 12½	to 8 2½	1.63	to 1.74
Boiler plates.....	9 0	to 10 10	1.92	to 2.25
Tees.....	8 2½	to 8 12½	1.74	to 1.84
Channels.....	7 7½	to 7 17½	1.58	to 1.69
Beams.....	7 2½	to 7 12½	1.53	to 1.63
Round bars, ¾ to 3 in..	7 5	to 7 15	1.55	to 1.66
Steel hoops.....	9 0	to 10 0	1.92	to 2.14
Black sheets, 24 gage...	9 15	to 10 0	2.09	to 2.14
Galv. sheets, 24 gage...	13 7½	to 13 10	2.86	to 2.93
Cold rolled steel strip, 20				
gage, nom.....	16 0		3.42	

\*Ex-ship, Tees, nominal.

## Continental Prices All F.O.B. Channel Ports (Per Metric Ton)

Foundry pig iron (a):				
Belgium.....	£3 3s.	to £3 5s.	\$15.32	to \$15.80
France.....	3 3	to 3 5	15.32	to 15.80
Luxemburg.....	3 3	to 3 5	15.32	to 15.80
Basic pig iron (nom.):				
Belgium.....	3 3	to 3 4	15.41	to 16.38
France.....	3 3	to 3 4	15.41	to 16.38
Luxemburg.....	3 3	to 3 4	15.41	to 16.38
Coke.....	0 18		4.37	
Billets:				
Belgium.....	4 18		23.81	
France.....	4 18		23.81	
Merchant bars:				
Belgium.....	5 19	to 6 0	1.30	to 1.31
France.....	5 19	to 6 0	1.30	to 1.31
Luxemburg.....	5 19	to 6 0	1.30	to 1.31
Joists (beams):				
Belgium.....	5 0	to 5 1	1.10	to 1.11
France.....	5 0	to 5 1	1.10	to 1.11
Luxemburg.....	5 0	to 5 1	1.10	to 1.11
Angles:				
Belgium.....	5 15		1.27	
¾-in. plate:				
Belgium (a).....	6 12½	to 6 14	1.44	to 1.48
Germany (a).....	6 12½	to 6 14	1.44	to 1.48
3/16-in. ship plate:				
Belgium.....	6 8		1.41	
Luxemburg.....	6 8		1.41	
Sheets, heavy:				
Belgium.....	6 1		1.33	
Germany.....	6 1		1.33	

(a) Nominal.

backlog, are refusing to offer any concessions and in some instances have advanced their base prices by as much as 20 fr. (78c) per ton. Increases of 40 and 50 fr. (\$1.56 and \$1.95) per ton have been asked by some makers, who are particularly well booked with orders.

Open-hearth steel continues scarce and shows even greater firmness than Thomas grade, with a number of mills quoting considerable advances when open-hearth material is specified. Compared with prices ruling in May, the present market shows a general increase of from 60 to 70 fr. (\$2.34 to \$2.73) per ton on Thomas grade and 90 to 100 fr. (\$3.51 to \$3.90) per ton on open-hearth grade.

Foundries are fairly well occupied with business. Wire and nail prices are beginning to show more firmness than for several months, and many

wire drawing mills are booked with sufficient tonnage to carry them for three to four months.

Contracts for railroad rolling stock are in prospect in consequence of the recent railroad accident at Le Mans, where five post office officials were killed. The French Post Office Administration has decided to call for immediate tenders on 90 to 114 steel-frame railroad mail cars, each 20 meters long, bids to be opened the latter part of September. It is reported that the Chemin de Fer du Midi has placed an order for 100 electric locomotives and 15 "automotrices" with the Siemens-Schuckert Werke, G.m.b.H., Berlin, and the Ateliers de Constructions Electriques de France. The German company is filling its share of the contract on reparations account.

## German Domestic Business Declining

Unemployment Greater Than a Year Ago—Export Trade Is Better  
—Locomotive Shops Seek Government Aid

BERLIN, GERMANY, Aug. 10.—Business continues to decline slowly and the number of unemployed is larger than in August, 1927, although there has been some improvement in seasonal industries. The coal market is more active, but chiefly because the Ruhr Coal Syndicate is selling at lower prices in the districts where British, Polish and Dutch exporters compete.

Reports of an impending agreement on coal with British producers are generally disregarded. It is pointed out that preliminary discussions have taken place in the past, but that no agreement is possible until the British mines have organized a syndicate that is representative and has authority in the industry. Five years were required to create the Ruhr syndicate, which has unified practically the entire German coal industry, and it is suggested here that it may take as long to establish a similar British syndicate. Only a far-reaching organization could enforce international price agreements. At present the Ruhr Coal Syndicate is seeking lower railroad rates, especially to the North Sea Coast, where British coal is entering Germany in large quantities.

The domestic market on iron and steel is quiet, and in pig iron British material is a considerable factor, particularly in North Germany. The iron and steel scrap market is dull and imports of scrap have declined considerably, dropping from 54,000 tons in April to 12,500 tons in June. At the same time exports of scrap have increased from 16,700 tons in April to 26,700 tons in June. About the most active product in the domestic field is steel bars. Export business has shown considerable improvement recently, and export prices, following a slight decline in the early part of July, are again quite firm. The Stahlwerksver-

band has advanced its price on bars by 2 to 3s. (48c. to 73c.) per ton, f.o.b. Antwerp, since the beginning of August.

Production of pig iron in July was 1,034,694 metric tons, compared with 1,021,350 tons in June and 1,108,893 tons in July, 1927. The increase in July over June was partly because of the greater number of working days.

### Mills Fairly Well Booked

Mills rolling semi-finished material are booked with orders sufficient to carry them for four to five weeks; bar mills have two months' work, structural mills about six weeks' work and band and sheet mills about four weeks' work. New business, however, is small, with foundries and machine shops rather inactive. Output of pig iron and steel ingots in Upper Silesia has declined more rapidly than in West Germany. Output in the first part of this year was considerably less than in the same period of 1927.

The foreign trade balance in heavy iron and steel is much better this year than in 1927, but not so good as in 1926, which was a poor year for domestic business. Imports of machinery in the first half of this year totaled 35,318 tons, and exports were 253,669 tons. Domestic demand for most types of machinery has declined, but some good foreign orders are being booked, several for payment on reparations account.

### Germans to Electrify French Railroad

The Southern Railroad of France has decided to electrify 1100 km. of its line and has placed a contract with the Siemens-Schuckert Werke, G.m.b.H. and the Ateliers de Constructions Electriques de France. It is understood that the Maffei A.G., Munich, will supply the mechanical parts of the electric locomotives to be furnished. From Paris it is reported

that an agreement for introduction on the French railroads of Kunze-Knorr brakes has been signed by the railroads and sanctioned by the Reparations Commission, payment being on reparations account.

Statements have been made that French and British contractors have received large railroad concessions in Afghanistan, but according to German reports the Allgemeine Bau-Gesellschaft Lens of Berlin has secured an option on all Afghan public railroad construction and a further concession to operate the roads when built. It is understood that this company will work with the firm of Dysckerhoff & Widmann, both corporations belonging to the A. G. für Verkehrswesen. Several German engineers are reported to have left for Afghanistan recently. The financing of the railroad construction is to be international.

### Locomotive Plants Ask State Aid

The locomotive builders have requested the Government to make a loan of 50,000,000 m. (\$11,905,000) to the Railroads Corporation to enable it to order needed locomotives, and has also asked the state to collaborate in a plan for reorganizing the 20 existing locomotive companies. The plan calls for elimination of the less efficient plants and state credits to them to permit adaptation of their shops to other products. The Government has rejected this suggestion and states that the industry must solve its own problems. In justification of its claims, the industry has submitted statistics showing the decline in the number of locomotives sold to three classes of buyers since 1912. Of 4052 sold in 1912, state railroads took 1367, private railroads 1330 and 1355 went for export. In 1926 only 615 locomotives were sold, of which 72 went to state railroads, 143 to private railroads and 400 were exported. In 1927, of 870 locomotives, 119 went to state roads, 321 to private roads and 430 were exported. For 1928 the Railroads Corporation is buying only 100 locomotives, while it is estimated that the normal requirement of the corporation should be about 800 a year. In some pre-war years the state railroads took as many as 1600 locomotives. The decline in requirements is attributed to loss of territory, electrification and the more efficient use of old locomotives. Even if export trade improves, many of the present plants will be forced to suspend operation.

### Czechoslovakian Mills Advance Prices

WASHINGTON, Aug. 25.—An increase of 10 per cent in the domestic price for steel has been announced by the Czechoslovakian producers, says a report to the Department of Commerce from Prague. The new prices became effective July 20 and apply only to non-special steel. No revision of prices on special grades is contemplated at this time.



## European Plants Adopting Our Methods

### Mass Production Being Studied by Progressive Manufacturers Abroad—Demands for American Machinery of Improved Design

AMERICAN machine tool builders who have kept in the lead in designing improved tools will have a good field for their product in the European market for a long time, but those who have not revamped their lines of machinery will find it difficult to compete with foreign machinery. American machinery manufacturers must keep improving their machines so that they will keep ahead of their foreign competitors.

These are some of the conclusions drawn by F. H. Chapin, president National Acme Co., Cleveland, who has just returned from an extended European trip. While he went abroad for pleasure, he made some study of industrial conditions in England, France, Belgium, Germany and Italy. The most promising European countries for American machinery at present, in his opinion, are Belgium, Germany and Italy. Though labor is cheap in Europe, he found a tendency among manufacturers to get costs down in order to reduce prices, so that consumers will buy manufactured products more freely.

Mr. Chapin predicted a boom in the automotive industry in Europe, predicting this on the desires of the people for modern conveniences and the very small percentage of the people in Europe who now own motor cars. He discovered considerable tendency among European metalworking plants to adopt American mass production methods. In an Italian plant he met two American engineers who had been engaged to introduce our methods of mass production and he said that Germany is sending young men to this country to work in shops and learn American production methods.

The people in France, Mr. Chapin found, have money and are taking a more liberal attitude toward spending it. This is evidenced by a great deal of building going on outside of areas devastated by the war. He also found that manufacturing industries are picking up in that country. France is buying merchandise on price and is not deterred by war animosities from buying German goods.

England still has her problems, he said, but has always shown the ability to solve them. While England has her hand firmly on the trade in her colonies, the minor industries in her colonial possessions are owned by the colonies themselves.

While Belgium is still suffering from the effects of the war, its metalworking industries, particularly the automotive industry, are expanding. Germany, he said, has accumulated what is equivalent to two billion dollars in savings accounts since the war, compared with four billion dollars before the war, and can and will pay her reparations.

In Italy he found an industrial awakening and a decided impetus in metalworking industries.

### Foreign Competition Slows Up Scottish Plants

WASHINGTON, Aug. 25.—The iron and steel works of the west of Scotland were moderately well employed throughout the second quarter of 1928, conditions generally being somewhat better than a year ago, according to G. E. Chamberlain, consul general at Glasgow, Scotland. Owing to the increased output of the shipyards of the district there has been a fairly steady demand for heavy plates and shapes, and some plants engaged in the production of these materials have been busy.

Light sheet makers, although maintaining a good volume of production, have found it more difficult to obtain orders both for home consumption and export. There has been a moderate demand for galvanized sheets. Bar iron makers are reported to be greatly in need of business, and there is still slackness in the demand for re-rolled steel. Some improvement was noted in the tube trade of the district during the closing weeks of the quarter, especially in demand for butt-welded pipe, and considerable quantities of this material are being exported.

The pig iron market experienced little activity, and at the close of the quarter only 21 furnaces were in blast. The production of light castings, which is chiefly confined to Falkirk and vicinity, has been considerably below normal, and much unemployment is reported in this branch of industry. Foreign competition both in the domestic and the export market is blamed for the present condition, and an effort is being made to reduce production costs by lowering wages.

### Foreign Steel Imports Small—Export Trade Quiet

NEW YORK, Aug. 28.—Arrivals of European steel for sale to American consumers have begun to diminish, as, with the exception of a few importers in New York who still have some small tonnages of low-priced material coming in, there is little possibility of selling foreign material at the present high prices. Steel bars have been at a prohibitive level for some time and shapes, except in cases where distress tonnages had been purchased abroad by importers, represent but little saving from the price of American mills. Until recently importers were selling some small

tonnages of hoops and bands, but, with Continental prices higher, a Southern mill has met the quotations of the importers on this material. This occurred in the past week on about 800 tons of hoops bought by a Southern maker of barrels, the material being for delivery into Georgia and Florida.

Exports of iron and steel are confined almost entirely to small lots of material going to the Far Eastern and South American markets. There is some demand for tin plate for shipment to South American meat packing plants, and there are a few inquiries from Japan for small lots of tin plate, including about 20,000 base boxes of canners' tin plate for the provision department of the Imperial Army. Japanese demand for lightweight black sheets continues at a low level with the price in Japan considerably reduced, galvanizing plants having curtailed operations since the inception of the Chinese boycott that grew out of the Manchurian situation. Among recent inquiries from Japan is a small list of railroad car material for the Imperial Government Railways.

### American Metallurgists to Hear Hatfield

As has been customary, the distinguished foreign guest who delivers the annual lecture before the American Society for Steel Treating will tour the Eastern States and speak at various places before returning to his home. This year Dr. W. H. Hatfield, who will present the Campbell Memorial lecture in Philadelphia, Oct. 10, will arrive in this country the first of that month. In addition to the memorial lecture he comes prepared to discuss the following subjects:

- "Application of Science to the Steel Industry."
- "Ingot Making, Manipulation and Treatment."
- "Heat Resisting Alloys of Iron."
- "Rust and Acid Resisting Steels."
- "Steels of Special Physical Characteristics."
- "Tool Steels, both Carbon and High Speed."

One or more of these lectures are now scheduled to be given at the following times and places:

- Oct. 2: Hartford Chapter, A. S. S. T.
- Oct. 3: Providence Chapter, A. S. S. T.
- Oct. 4, 5 and 6: Yale University, Hammond Laboratory.
- Oct. 7: Boston Chapter, A. S. S. T.
- Oct. 8, 9 and 10: Massachusetts Institute of Technology.
- Oct. 12: New York Chapter, A. S. S. T.
- Oct. 15: Washington Chapter, A. S. S. T.
- Oct. 17, 18 and 19: Carnegie Institute of Technology.
- Oct. 22: Canton Chapter, A. S. S. T.
- Oct. 24: Detroit Chapter, A. S. S. T.
- Oct. 26 and 27: University of Michigan.
- Nov. 5: Syracuse Chapter, A. S. S. T.

A new municipal barge line terminal at Dubuque, Iowa, was officially opened on Aug. 16. A number of other cities on the Mississippi River have established barge terminals, providing convenient connection between rail and water carriers.

# Machinery Markets and News of the Works

## Machinery Outlook Good

Brisk Midsummer Business Indicates to Trade a Healthy Fall Demand—Prospects Are Plentiful

HAVING enjoyed one of the most active midsummer periods in years, the machine tool industry now looks forward to a healthy, steady fall business, an expectation which is based partly on the fairly large volume of pending inquiries, on many of which action has been delayed by prospective purchasers because of vacation absences.

For the country as a whole, August business will probably equal that of July. In the New York district, where there was unusually heavy buying in July, the August total may not equal that of the preceding month, but reports from Chicago indicate that the present month may be one of the best of the year in that market.

Inquiry for tools is steady from nearly all branches of the metal-working industry. Railroads have bought lightly, but the prospects of increased business from that source appear somewhat more promising. The Rock Island and the Burlington are expected to place orders shortly at Chicago against recent inquiries. The Missouri Pacific and the New York Central have each inquired for a number of tools. The Missouri-Kansas-Texas has bought a few machines.

In the automotive field, the plans of the Lancia Motors of America, Inc., which will manufacture automobiles in the former Fiat plant at Poughkeepsie, N. Y., are interesting the machine tool trade. The company is figuring on equipment for a production of 10 to 25 cars a day. The Kissel Motor Car Co., Hartford, Wis., will manufacture taxicabs, and it is reported that plant facilities will soon be doubled. In the accessory field, the purchase of a number of machines by the Gabriel Snubber Mfg. Co., Cleveland, featured the week's business in the Cleveland market.

## New York

NEW YORK, Aug. 28.—The General Electric Co., Schenectady, N. Y., was again the principal buyer of machine tools in the past week, its orders totaling \$25,000 or more. The New York Central has inquired for a number of machines. Business continues at a fairly steady pace, though the August totals for many sellers may be lower than those of July. The Lancia Motors of America, Inc., which recently took over the former Fiat automobile plant at Poughkeepsie, N. Y., for the manufacture of Lancia automobiles in this country, is getting initial figures on equipment for a production of 10 to 25 cars per day. Some of the parts will be brought over from Italy at first, but the company expects to make the entire car in this country eventually. Anthony M. Flocker is president and Ralph De Palma, racing driver, is interested in the company in an executive capacity.

Among the week's sales of the Niles-

Bement-Pond Co. were a 144 x 96 x 32-in. planer, a 90-in. heavy driving wheel lathe, a 100-ton bushing press, a 20-in. Niles-Acme shaper and an 18-in. x 16-ft. Boye & Emmes lathe. The Pratt & Whitney division had an exceptionally active week, its sales including 12 lathes of various sizes, six jig borers, two die sinkers, three drilling machines, two universal bench millers, four gear shavers, two vertical surface grinders, a rotary surface grinder, two vertical shapers and six profiling machines.

Porter-Cable Machine Co., Syracuse, N. Y., has received order from Poland for 16 Porter-Cable high-speed production lathes.

Scully Mfg. Co., 208 Broad Street, Elizabeth, N. J., has been organized with capital of \$125,000 to manufacture stoves, gas and coal ranges and hot water heaters. Company will also operate jobbing foundry to make brass, bronze, aluminum and gray iron castings. Plant will be built and equipment purchased.

Zarkin Machine Co., Inc., temporarily at 99 John Street, New York, has been organized to manufacture lithographing and printing press machinery, specializ-

ing on Zenith graining machine. Plant is located at 363 Cherry Street, New York, and company is in market for raw materials.

Boylton Perco Boilers, Inc., 245 West Broadway, New York, has been organized to manufacture under contract line of steam, vapor and water boilers. Company also expects soon to place on market new type of radiator valve.

International Nickel Co., 67 Wall Street, New York, has authorized sale of new stock to total about \$12,000,000, and will use in part for proposed expansion at Frood properties, Sudbury, Ont., for which a fund of about \$14,000,000 will be required during next 36 months for hydroelectric power equipment, concentrating machinery, additions to smelting plant, installation of electrolytic processes, and underground and surface machinery.

Superintendent of lighthouses, Staten Island, will receive bids until Sept. 6 for 300 acetylene cylinders complete, each with capacity of 88 cu. ft.; proposal 27830.

Department of Mental Hygiene, Capitol Building, Albany, N. Y., will receive bids until Sept. 12 for machinery for two double-end steel Diesel-electric ferryboats for Manhattan State Hospital, Wards Island, New York, as per specifications at office of Department of Public Works, Division of Architecture, Albany; and Flatiron Building, New York.

Officials of Swan-Finch Oil Corporation, 522 Fifth Avenue, New York, a unit of Standard Oil Co., 26 Broadway, have organized a subsidiary to be known as Swan-Finch Refining Co., with capital of \$500,000, to establish and operate a new refining plant for gasoline production. Parent company operates plants at Bayonne, N. J., Buffalo, N. Y., and Chicago, for manufacture of lubricating oils, greases, etc.

International Paper Co., 100 East Forty-second Street, New York, has approved construction of new newsprint mill near Dalhousie, N. B., to cost close to \$2,500,000 including machinery.

Consolidated Instrument Co. of America, Inc., 41 East Forty-second Street, New York, manufacture of air speed indicators, oil pressure gages and other precision instruments, plans establishment of new assembling plant, as well as new laboratory for experimental and research work, for production of present and new instruments. Company will also secure substantial interest in Aircraft Control Corporation, and will expand such line of production. A stock issue of 40,000 shares will be sold to carry out program. Joseph Leopold is president.

Greenburgh School District No. 9, Elmsford, N. Y., is considering installation of manual training equipment in new two-story high and grade school to cost about \$250,000, for which plans are being drawn by Knappe & Morris,



## The Crane Market

**V**ERY little new inquiry for overhead or locomotive cranes has appeared in the past week, and not much activity seems to be expected by sellers until after Labor Day. Several inquiries for prices on used locomotive cranes are in the market. An inquiry for nine small capacity hand power cranes is reported current, the buyer unnamed. A 10-ton hand power

crane for Lehigh University, Bethlehem, Pa., is still pending, and the General Electric Co., Schenectady, N. Y., is not yet reported to have closed on several small capacity electric cranes. Bids are being received until Sept. 10 by the Colombian Government for the Ferro Carril Central Del Norte, Section 2a, on a 20-ton electric overhead crane.

Among recent purchases are:

Elmira Foundry Co., New York, 22-ton, 8-wheel, gasoline engine operated locomotive crane from Orton Crane & Shovel Co.

St. Louis Municipal Waterworks, St. Louis, 20-ton crane for pumping station from Shaw Crane Works.

171 Madison Avenue, New York, architects.

R. H. Macy & Co., Inc., Thirty-fourth Street and Broadway, New York, department store, has engaged Robert D. Kohn, 56 West Forty-fifth Street, architect, to prepare plans for multi-story storage and distributing plant, with mechanical handling-equipment, 325 x 350 ft., on Frelinghuysen Avenue, Newark, N. J., estimated to cost about \$200,000.

T. A. Meyer, 150 East Forty-first Street, New York, architect, has plans in preparation for fifteen-story automobile service, repair and garage building at 319-25 East Thirty-ninth Street, to cost close to \$650,000 with tools and equipment.

Consolidation plans have been arranged by Improved Equipment Co., 24 State Street, New York, and Russell Engineering Co., St. Louis, both manufacturers of coal gas plants, carbonizing equipment, etc., under name of Improved Equipment-Russell Engineering Corporation. Company plans expansion and development program for increased production of gas benches, ovens and kindred machinery. It will be operated under direction of Henry L. Doherty & Co., 60 Wall Street, New York, engineers and operators of public utility properties.

Triplex Safety Glass Co. of North America, Inc., Hoboken Terminal Building, Hoboken, N. J., manufacturer of non-shatterable sheet glass products, is concluding arrangements for purchase of factory property at Clifton, N. J., and will remodel and equip for new plant. Company will also carry out expansion and improvement program for larger output, and has arranged for increase of \$1,000,000 in capital, bulk of fund to be used for such purpose. Amory L. Haskell is president.

Burstyn & Heftler Corporation, 404 Thirty-eighth Street, Jersey City, N. J., is planning construction of eight-story automobile service, repair and garage building at 871 Bergen Avenue, to cost in excess of \$500,000 with tools and equipment.

Pioneer Iron Works, Inc., 317 Frelinghuysen Avenue, Newark, plans construction of addition on adjoining site to cost close to \$30,000 with equipment. L. J. Siegler is president.

Bayonne Bolt Corporation, Second Street and Trask Avenue, Bayonne, N. J., has filed plans for one-story plant, 150 x 235 ft., to cost in excess of \$75,000 with equipment.

Board of Education, South River, N. J., plans installation of manual training equipment in two-story and basement high school addition, to cost about \$150,000, for which bids have been asked on general contract. Alexander Merchant, 52 Paterson Street, New Brunswick, N. J., is architect.

## Philadelphia

PHILADELPHIA, Aug. 28.—Willey-Ellis Co., 210 North Thirteenth Street, Philadelphia, manufacturer of laundry machinery and parts, will soon begin work on new one-story plant at 1223 South Tallman Avenue, Chicago, reported to cost close to \$150,000, with equipment.

United Engineers & Constructors, Inc., 1401 Arch Street, Philadelphia, has been engaged to make surveys and prepare plans for a municipal power project at Austin, Tex., and will carry out entire program, including purchase of necessary equipment.

Philadelphia Gas Works Co., operated by United Gas Improvement Co., 1401 Arch Street, has purchased property, 480 x 480 ft., on block bounded by Fifty-seventh and Fifty-eighth Streets, Eastwick Avenue and Lindbergh Boulevard, as site for new storage and distributing plant, to cost approximately \$1,000,000, with equipment.

Hamilton Township Board of Education, Trenton, N. J., is considering installation of manual training equipment in new high school at Clinton and Park Avenues, to cost \$650,000, in which amount fund has been authorized by public vote. Plans will soon be drawn.

American Brown Boveri Electric Corporation, Camden, N. J., manufacturer of heavy electrical machinery and operating former local shipyard of New York Shipbuilding Co., is in negotiation with City Commissioners, Newark, N. J., regarding proposed establishment of plant at municipal airport, Port Newark, for production of dirigible aircraft, primarily for assembling work, reported to cost more than \$1,000,000.

Armstrong Mfg. Co., Waterloo, Iowa, manufacturer of well-dripping machinery and parts, has acquired property at Sixteenth and Mayflower Streets, Harrisburg, Pa., and plans new factory branch and distributing plant, one-story, 100 x 300 ft., reported to cost in excess of \$40,000, with mechanical equipment.

State Prison Department, Harrisburg, Pa., plans replacement of rock-crushing plant at Rockview penitentiary, near Belfonte, Pa., destroyed by fire, Aug. 20, with machinery loss reported at \$15,000.

Reading Railroad, Reading Terminal, Philadelphia, has work under way on new engine house with repair facilities at Shamokin, Pa., reported to cost more than \$200,000, and is scheduling completion at early date.

Pennsylvania Water & Power Co., Holtwood, Pa., has begun preliminary surveys for hydroelectric power development at Safe Harbor on Susquehanna River. Entire project is reported to cost more than \$3,500,000.

Board of Trustees, Lafayette College, Easton, Pa., will soon take bids on general contract for new mining engineering building at institution, to cost more than \$200,000, with mechanical equipment. Charles Z. Klauder, 1429 Walnut Street, Philadelphia, is architect.

City Council, Monessen, Pa., has secured property on Pricedale Road and plans municipal airport, including hangar, repair and reconditioning shop and other buildings.

Spicer Mfg. Co., Norristown, Pa., manufacturer of universal joints, automobile shafting, etc., has begun work on one-story addition, reported to cost more than \$35,000, with equipment.

Davis Brothers, Inc., 4250 Wissahickon Avenue, Philadelphia, manufacturer of spikes, nails, etc., has taken out permit for a one-story addition, reported to cost about \$18,000.

Norman Aircraft Co., Burlington, N. J., recently organized, has taken over property at Barclay and Stacy Streets, and plans early establishment of new plant for production of airplanes, with initial operations devoted primarily to assembling.

## Pittsburgh

PITTSBURGH, Aug. 27.—Machine tool inquiries are more numerous than they have been. In sales, most of the trade have done better in the past week than in the first two weeks of the month. The Westinghouse Electric & Mfg. Co. has awarded some more orders against its third quarter list.

Allegheny Gear Works, Inc., 1013 Empire Building, Pittsburgh, forgings manufacturer, has changed name to Allegheny Forging Co.

S. Keighley Metal Ceiling & Mfg. Co., 15 Third Avenue, Pittsburgh, maker of steel lockers, has changed firm name to Keighley Mfg. Co.

Scientific Materials Co., 717 Forbes Street, Pittsburgh, manufacturer of pressure and vacuum gages, recording instruments, optical benches, pyrometers and hardness testing machines, has changed name to Fisher Scientific Co.

Contract has been let by United States Aluminum Co., operated by Aluminum Co. of America, Inc., Oliver Building, Pittsburgh, to C. A. Fritz, Pittsburgh general contractor, for new plant on Post Road, Fairfield, Conn., comprising main one-story unit, 220 x 477 ft., and two auxiliary structures, one-story, 65 x 140 ft., and two-story, 30 x 120 ft., to cost in excess of \$200,000, with equipment.

Oliver Iron & Steel Works, Pittsburgh, has filed plans for one-story addition to plant at Tenth and Muriel Streets.

West Virginia Hydro-Electric Co.,

Charleston, W. Va., recently organized by Thomas Richardson and L. W. Van Bibber, both of Charlottesville, Va., where main offices will be established, is reported planning early development of hydroelectric power facilities in Raleigh and Summers Counties, W. Va.; sites are being selected. Project is reported to cost more than \$350,000.

West Virginia Rail Co., Seventeenth Street, Huntington, W. Va., has approved general expansion and improvement program to cost more than \$450,000. Company has recently secured local property heretofore held by Huntington Sash, Door & Trim Co., and will remove fabricating plant to that site, where capacity will be increased with additional equipment. Mill No. 2 will be electrified and new machinery installed for production of steel mine ties, spike rods, reinforcing steel bars, etc. It is proposed to build a new unit for this department of the plant next year. Mill No. 1 will be extended and improved. H. Z. Zeller is vice-president and general manager.

## South Atlantic

**B**ALTIMORE, Aug. 28.—Bids will soon be asked by United Railways & Electric Co., Continental Building, Baltimore, for one and two-story service, repair and garage building for motor buses, reported to cost in excess of \$175,000, with equipment. W. H. Emory, 18 East Lexington Street, is architect.

Supervising architect, Treasury Department, Washington, will receive bids until Sept. 18 for motor-generator sets and auxiliary equipment for United States Mint at Philadelphia.

American Chatillon Corporation, Rome, Ga., has awarded general contract to Hughes-Foulkrod Co., Commonwealth Building, Philadelphia, for new local rayon mill to cost about \$3,000,000, including power house, machine shop, filter plant and other mechanical units. Headquarters are at 393 Seventh Avenue, New York.

Standard Oil Co., St. Paul and Franklin Streets, Baltimore, has plans nearing completion for additions to refining plant on Eighth Street, Canton, comprising three buildings, 55 x 105 ft., and two 32 x 60 ft., with installation of gasoline refining equipment, tanks, etc., reported to cost \$200,000. Headquarters are at 26 Broadway, New York.

Commission on Public Improvements, Municipal Office Building, Baltimore, is considering installation of manual training equipment in proposed new four-story junior high school on Barrington Road, near Garrison Boulevard, reported to cost close to \$1,000,000, with equipment. Smith & May, Calvert Building, are architects.

Burns Bottling Machine Works, 2329 Taylor Street, Baltimore, manufacturer of automatic bottling machinery and parts, is planning one-story addition, about 43 x 65 ft., to cost about \$30,000, with equipment.

General Purchasing Officer, Panama Canal, Washington, is asking bids until Sept. 10 for 4,000 ft. galvanized chain, 53,100 ft. wrought iron or steel galvanized pipe, 100 engine lubricators, 15,000 ft. rubber insulated copper wire, 30 electric drills, 50 water heaters, staybolts, boiler tubes and other mechanical equipment, Panama circular No. 1898.

International Harvester Co., 606 South Michigan Avenue, Chicago, has awarded general contract to F. L. Wagner, Inc., 1336 New York Avenue, N. W., Washing-

ton, for one-story motor truck factory branch, service and repair works on Bladensburg Road, N. E., Washington, to cost about \$100,000, with equipment, C. B. Rafter, Barr Building, Washington, is consulting engineer.

Officials of Diez-Roemer Brass Co., 212 Fallsview Street, Baltimore, manufacturer of brass castings, etc., have organized a new company under name of American Brass & Fire Equipment Corporation to take over and expand present organization. New company has acquired American Fire Extinguisher Co., Baltimore, and will consolidate with Diez-Roemer organization. An expansion program will be carried out for increased production. Conrad J. Diez is company official and chief engineer.

Simmons Co., Kenosha, Wis., manufacturer of metal bedsteads, springs, mattresses, etc., has acquired controlling interest in Rosemary Mfg. Co., Roanoke Rapids, N. C., and will continue operation of mill as factory branch for production of mattress specialties and other products. An expansion and improvement program is said to be under consideration.

Great Northern Utilities Co., 3933 Drexel Boulevard, Chicago, plans construction of artificial gas plant and system at Piedmont, S. C., and vicinity, including pipe lines to more than 40 communities in this section. Initial plant will include water-gas machinery, gas compressors, purifiers, and auxiliary equipment, with number of storage and distributing plants in different districts. Entire project reported to cost more than \$4,000,000. Arthur J. Smith is head.

## Buffalo

**B**UFFALO, Aug. 27.—Continental Can Co., Rochester, N. Y., has concluded negotiations for purchase of New Orleans Can Co., New Orleans, La., and will consolidate with organization. New Orleans plant will be continued in production as branch factory and expansion is being considered. Company recently acquired Southern Can Co., Baltimore, and is maintaining branch plant in that city.

Old Forge Electric Corporation, Old Forge, N. Y., has applied for permission to take over local municipal power plant as well as municipal utility properties at Webb, heretofore served from first noted station. Petition states that upon acquisition, extensions and improvements will be made in power plant, including installation of additional equipment.

Likly Luggage Co., Lydell Avenue, Buffalo, manufacturer of metal trunks etc., has acquired group of buildings at Fitchburg, Mass., heretofore held by Amoskeag Mfg. Co., and used for textile production, and will remodel and improve for main plant. Entire Rochester works will be removed to new location and additional equipment provided for increased output.

Binghamton Light, Heat & Power Co., Binghamton, N. Y., is planning extensions in power plant, transmission lines and other operating facilities, including installation of additional equipment. Company has arranged for increase in capital from 175,000 to 275,000 shares of stock, the majority of proceeds to be used for program. It is operated under direction of General Gas & Electric Co., 50 Pine Street, New York.

Department of Public Works, Municipal Building, Buffalo, will receive bids until Sept. 4 for construction of new hangar at Buffalo airport, Cheektowaga,

with repair and reconditioning facilities, as per plans and specifications on file. George F. Fisk is commissioner.

Pierce Arrow Motor Car Co., Buffalo, has been chartered under State laws with capital of 8,000,000 shares of preferred and 427,375 shares of common stock, to take over and expand company of same name with local plant on Elmwood Avenue, particularly in connection with increase in motor truck output. New company is affiliated with Studebaker Corporation, South Bend, Ind., which has secured a controlling interest. A. R. Erskine, head of last noted company, will be chairman of board; M. E. Forbes, president; and B. H. Warner of Studebaker organization, vice-president in charge of manufacturing.

## Cleveland

**C**LEVELAND, Aug. 28.—Machine tool dealers did a fair volume of business, mostly in single machines, in the past week and the August volume may show a slight gain over that of July. Business is coming almost wholly from manufacturers of automobile parts. Die sinkers are in very active demand from this source. Among orders placed during the week was one from the Transue & Williams Steel Forging Corporation, Alliance, Ohio, for four die sinkers. The Gabriel Snubber Mfg. Co., Cleveland, has purchased quite a number of machines for the manufacture of shock absorbers. The Perfection Stove Co., Cleveland, which is getting into the manufacture of automatic refrigerators, purchased a jig boring machine. Automatic screw machines are moving in fair volume and deliveries on these and some other lines of machine tools have slowed down considerably.

Charles T. Topping Machinery Co., manufacturer of excavating machinery, has removed its general offices from Dayton, Ohio, to 4403 St. Clair Avenue, Cleveland. Company has also completed arrangements providing enlarged manufacturing facilities, but will purchase no additional equipment. It is expected that new types of excavating equipment will be announced as soon as development work is completed.

Bell Metal Stamping Co., Cleveland, has been organized and has established a plant at 1784 East Thirty-seventh Street, where it is engaged in the manufacture of light metal stampings. Herbert L. Bell is manager.

Contract has been let by Grabler Mfg. Co., 6565 Broadway, Cleveland, manufacturer of hangers, clamps, etc., to S. W. Emerson Co., 1836 Euclid Avenue, for one-story addition, 40 x 80 ft., estimated to cost \$40,000 with equipment. Christian, Schwarzenberg & Gaede, Euclid Building, are architects.

Midland Steel Products Co., Madison Avenue and West 106th Street, Cleveland, manufacturer of automobile frames, four-wheel brakes, and other automotive equipment, is arranging an immediate expansion program for extensive increase in present output, reported to cost more than \$200,000 with equipment. It is proposed to develop increase of close to 2000 frames and more than 1000 brake sets over present capacity. E. J. Kulas is president.

Triplex Screw Co., 6112 Central Avenue, Cleveland, has awarded general contract to J. L. Hunting Co., Guarantee Building, for one-story addition, 40 x 122 ft., to



cost approximately \$35,000 with equipment. A. F. Weber is head.

Hinde & Dauch Paper Co., Sandusky, Ohio, manufacturer of corrugated paper board products, has approved plans for new mill at Winnipeg, Man., consisting of several units with boiler plant, machine shop, and other mechanical buildings, reported to cost close to \$1,000,000. O. H. Moore, general manager, will supervise erection.

Aetna Rubber Co., 815 East Seventy-ninth Street, Cleveland, manufacturer of hard and soft molded mechanical and other rubber goods, has begun construction of new plant addition at Ashtabula, Ohio, to consist of two manufacturing units, 60 x 180 ft., and 60 x 92 ft., and one-story machine shop, to cost close to \$125,000 with equipment. Webster Co., Ashtabula, is general contractor. S. T. Campbell is president and general manager.

Board of County Commissioners, Painesville, Ohio, L. J. Spaulding, clerk, will receive bids until Sept. 4 for hydraulic-operated stokers for two boilers, with capacity for handling 800 lb. per hour.

## Chicago

**C**HICAGO, Aug. 27.—Fresh inquiry from widely scattered and miscellaneous sources holds steady and lends support to dealers' hopes that this will be one of the best months of the year. New sales, though not individually large, are numerous. It is reported that the Rock Island Railroad is prepared to place orders against recent inquiries and that the Burlington will soon issue purchase orders. Forgers, gasoline engine builders and tractor manufacturers are among the most active buyers. The Kissel Motor Car Co., Hartford, Wis., will manufacture a line of taxicabs and it is reported that plant facilities will soon be doubled. Used machines are in good demand, but the supply of certain types is limited.

John Deere Tractor Co., Waterloo, Iowa, has filed plans for one-story power house to cost \$35,000.

City Service Gas Co., Wichita, Kan., will expand its gas compressor plants at Mooreland, Okla., Corwin, Kan., and Higgins, Tex.

New power house to cost \$175,000 is being constructed at the Great Lakes Naval Training Station.

Autorad Electric Corporation, Muskegon, Mich., newly organized, has leased space in plant of the Evans-Miller Cedar Products Co., where it will manufacture radio parts and possibly small automobile parts.

American Forge Co., 2621 South Hoyne Avenue, Chicago, will build one-story brick foundry, 80 x 140 ft., to cost \$50,000.

Mohr Mfg. Co., Inc., Marshalltown, Iowa, has been organized to manufacture electric automatic door operator and kindred equipment. Equipment has been purchased and company will buy malleable castings and steel, the most of which has been contracted for.

Central Steel Products Co., Clinton, Iowa, incorporated in 1924 to manufacture pipe nipples, spacers and fabricated pipe, plans to add complete line of plumbing and heating supplies to Clinton plant and to increase production of manufactured products. Company has recently in-

creased capital to \$500,000 to take over business of Cedar Rapids Pump & Supply Co., Cedar Rapids, Iowa, jobber of plumbing, heating and mill supplies, and later main office of Central company will be located at Cedar Rapids. At present offices are maintained in that city at 1018 Merchants National Bank Building. C. A. Depue is president.

Construction Machinery Co., Waterloo, Iowa, has purchased plant and business of Marsh-Capron Co., Chicago Heights, Ill. Both plants will be operated at present and R. C. Weller, president of Chicago Heights concern, will become sales manager of Waterloo company. Harry B. Lichty is president.

Meadows Co., Bloomington, Ill., has sold its patents, rights to manufacture and patterns for blowers, portable elevators and bucket elevators to Hayes Co., Galva, Ill., which will begin immediate production. In future Meadows Co. will confine its activities to manufacture of washing machines.

Contract has been let by Victor Mfg. & Gasket Co., 5750 Roosevelt Road, Chicago, manufacturer of metallic gaskets, etc., to Schmidt Brothers Construction Co., 22 East Huron Street, for four-story addition, 100 x 160 ft., to cost about \$150,000 with equipment. Frank D. Chase, Inc., 720 North Michigan Boulevard, is architect and engineer.

Nordenberg Trunk Works, 406-8 North Clark Street, Chicago, manufacturer of metal trunks, etc., plans rebuilding of portion of factory destroyed by fire Aug. 16, with loss reported at close to \$50,000 including equipment.

Western Electric Co., 11 South La Salle Street, Chicago, manufacturer of telephone apparatus, cables, radio equipment, etc., is said to have plans under way for a new non-ferrous metal mill at Twenty-sixth Street and Cicero Avenue, Cicero, Ill., to cost more than \$2,000,000 with machinery.

Central States Power & Light Corporation, Davenport, Iowa, is disposing of preferred stock issue to total about \$2,167,000, a portion of proceeds to be used for extensions and improvements in power plants and system. H. C. Orton is president.

Water Department, Cedar Rapids, Iowa, plans installation of pumping machinery, power equipment and accessories in connection with extensions and improvements in municipal waterworks, with new source of supply from Prairie Creek, estimated to cost in excess of \$500,000. H. R. Green Co., Bever Building, is consulting engineer.

Durango Natural Gas Co., Durango, Colo., has made application for permission to construct natural gas distributing plant and pipe line, estimated to cost \$200,000.

Board of Education, Minot, N. D., plans installation of manual training equipment in new three-story addition to junior high school, estimated to cost \$250,000, for which bids will soon be asked on general contract. Bugenhagen M. Molander, Union National Bank Annex, is architect.

Cadillac Motor Car Co., 2301 South Michigan Boulevard, Chicago, has awarded general contract to Patterson & Havtich, 140 South Dearborn Street, for two-story service, repair and sales building at 5201-9 Broadway, reported to cost more than \$100,000 with equipment.

Northern Pacific Railway Co., St. Paul, Minn., is completing plans for new steel car repair shop, 110 x 250 ft., at Laurel,

Mont., reported to cost in excess of \$175,000 with equipment, latter to include traveling cranes. T. F. Lowry is general superintendent.

Elco Tool & Screw Corporation, 1800 Broadway, Rockford, Ill., has announced plans for plant addition to cost \$10,000. New building will be two-story brick construction, 26 x 88 ft., and will be used chiefly for shipping and receiving departments.

## St. Louis

**S**T. LOUIS, Aug. 27.—The Missouri-Kansas-Texas Railroad has purchased two Putnam combination car axle and journal and axle lathes, and a Warner & Swasey No. 1A turret lathe. The Wabash has purchased a heavy-duty railroad internal grinder and 34-in. and 40-in. drill presses. The Missouri Pacific is in the market for the following machine tools: 4-ft. radial drill, nipple machine, portable boring bar, small floor grinder and several smaller machines.

Plans are being considered by Chandeysson Electric Co., 4092 Bingham Avenue, St. Louis, manufacturer of plating electric units and other electrical equipment, for one-story addition, totaling about 10,000 sq. ft. floor space, to cost approximately \$60,000 with machinery. Work is now under way on one-story unit of smaller size, to cost about \$40,000 with equipment. Widmer Engineering Co., Roosevelt Building, is engineer.

City Council, Stanberry, Mo., will soon take bids for municipal light and power plant, including oil engine and other equipment. Henriel-Lowry Engineering Co., Security Building, Kansas City, Mo., is consulting engineer.

Board of Public Service, City Hall, St. Louis, is said to plan early call for bids for addition to power house at Koch, Mo., estimated to cost \$50,000 with equipment; installation will include 500-hp. boiler unit, stoker, etc. J. L. Rilliet, Jr., City Hall, is engineer.

Public Service Co. of Oklahoma, Tulsa, has disposed of bond issue of \$5,000,000, a portion of proceeds to be used for acquisition of additional properties and extensions and improvements in generating and transmission line facilities.

## Detroit

**D**ETROIT, Aug. 28.—City Council, Allegan, Mich., is having plans drawn for municipal power plant on Kalamazoo River, to cost about \$500,000, with transmission lines. Ayres, Lewis, Morris & May, Cainwell Building, Ann Arbor, Mich., are architects and engineers.

Wilcox-Rich Corporation is being organized to take over and consolidate Wilcox Products Corporation, Saginaw, Mich., manufacturer of engine valves and other mechanical equipment, and Rich Steel Products Co., Battle Creek, Mich., manufacturer of similar specialties. Merger will include Intra Steel Products Division of Wilcox organization, heretofore operating with headquarters at Detroit. New company will be capitalized at 92,000 shares preferred stock, and 135,000 shares common stock, and plans expansion program for enlarged output.

Board of Water Commissioners, 176 East Jefferson Avenue, Detroit, will receive bids until Sept. 5 for one motor-

driven centrifugal pumping unit with auxiliary equipment, rated capacity of 6,000,000 gal. per day, as per plans and specifications on file. George H. Fenkell is general manager and chief engineer.

Vorclone Corporation has been organized under Delaware laws to take over and consolidate Detroit Laundry Machinery Co., Detroit; Power Brothers Co. and Vorclone Co., Milwaukee, manufacturer of fan equipment and devices, drying tumblers, etc. New company has arranged for preferred stock issue to total \$1,600,000, a portion of proceeds to be used for expansion in production. Monte J. Power is president.

Wisconsin-Michigan Power Co., Iron Mountain, Mich., plans construction of hydroelectric power plant on Sturgeon River, Baraga County, Mich., where tract of about 15,000 acres of land was recently acquired, estimated to cost close to \$3,000,000, scheduled for completion in about 36 months. Headquarters are at Appleton, Wis. Company is operated by North American Edison Co., Cleveland.

Federal Stamping Co., Holland, Mich., manufacturer of stamped metal products, is planning extensions to double, approximately, present capacity, reported to cost more than \$350,000, with machinery.

Copeland Products, Inc., 630 Lycaete Street, Detroit, manufacturer of electric refrigerators and refrigerating equipment, has taken over a building adjoining plant and will use for expansion; it is proposed to double present capacity with new unit.

Keller Tractor & Shovel Co., Inc., 5124 Braden Avenue, Detroit, has been organized by Carl H. Keller and associates to distribute tractors of the Caterpillar Tractor Co., San Leandro, Cal.; gas and air shovels, cranes and draglines made by the Bucyrus-Erie Co., South Milwaukee, Wis., and earth moving machinery and snow plows manufactured by Baker Mfg. Co., Springfield, Ill.

Locklite Co., Iron Mountain, Mich., has been formed to manufacture patent electric light socket. Company has small plant at Iron Mountain, but will have some work done by outside manufacturers. Additional equipment and supplies will be purchased soon.

Olds Motor Works, Lansing, Mich., is preparing for an increase in floor space of 163,150 sq. ft. The new construction will cost about \$1,500,000. It is said that calls from the dealers, following the introduction of the DeLuxe models, equalled the entire production schedule for the remainder of the year.

After Sept. 1 all Chrysler "65" cars will be built in the company's Jefferson Avenue plant in Detroit, where the "75" and Imperial "80" cars are now made. This will leave the entire Highland Park plant devoted to the manufacture of the Chrysler-Plymouth and the new De Soto six line, announced recently. A new building, 1000 ft. long, has been added to the Jefferson Avenue plant to make room for this change, which will be effected without interruption in production.

The Gorham Tool Co., manufacturer of high-speed machine tools, is building an addition to its plant No. 2 on Woodrow Wilson Avenue, Detroit, which includes a second unit on its plant there and a modern office building. After Oct. 1, when it is expected the buildings will be completed, the executive offices will be located at plant No. 2 and a major portion of the tool manufacturing will be done at the new plant.

## Gulf States

**B**IRMINGHAM, Aug. 27.—Plans have been completed by Central Power & Light Co., Frost National Bank Building, San Antonio, Tex., for hydroelectric power project on Devil's River, reported to cost in excess of \$350,000, with transmission line.

Big Spring Pipe Line Co., Big Spring, Tex., recently organized, will soon begin construction of pipe line from that place to Roberts pool district, about 15 miles, with power station and booster plant. It will have capacity of 7500 bbl. per day and will cost in excess of \$300,000. Joseph Edwards is president.

Board of Education, Dallas, Tex., will install mechanical equipment for vocational instruction at high school on Bryan Street, including foundry for aluminum and brass castings, sheet metal shop equipment, automobile repair equipment, welding apparatus, etc. Denman Kelley, principal, is in charge.

Tangipahoa Parish School Board, Independence, La., contemplates installation of manual training equipment in new two-story high school, estimated to cost about \$165,000, for which bids will be asked on general contract early in September. Robert H. Goodman, Bank of Baton Rouge Building, Baton Rouge, La., is architect.

Todd Engineering, Dry Dock & Ship Repair Co., New Orleans, La., is completing construction of new dry dock and ship repair unit to cost approximately \$1,000,000, and will provide equipment and place in service at early date.

Davison-Pick Fertilizer Co., Inc., New Orleans, La., is planning extensions and improvements in plant at Gretna, La., including installation of additional machinery, with two electric traveling cranes for handling cargoes from dock to plant. Entire project will cost close to \$180,000. W. W. Pickens is president.

City Commission, Daytona Beach, Fla., plans installation of pumping machinery and other power equipment, including water-softening apparatus, in connection with proposed extensions and improvements in municipal waterworks, estimated to cost close to \$400,000. Metcalf & Eddy, 14 Beacon Street, Boston, Mass., are consulting engineers.

Asiatic Petroleum Co., 65 Broadway, New York, is reported planning construction of new oil storage and distributing plant at Tampa, Fla., to cost more than \$100,000, with equipment.

Weber-Kling Mfg. Co., Leesville, La., manufacturer of mechanical equipment, is considering rebuilding of portion of machine shop recently destroyed by fire with loss estimated at close to \$25,000, with equipment.

Southern Natural Gas Corporation, First National Bank Building, Birmingham, Ala., is perfecting plans for extensive pipe line system, with compressor stations, etc., for natural gas supply to a number of cities in Alabama, Mississippi, and adjoining States, with ultimate project to total more than 850 miles, estimated to cost in excess of \$30,000,000. Arthur L. Mullergren, Kansas City, Mo., is consulting engineer. Robert C. Sharp, president and general manager, Oklahoma Natural Gas Corporation, Tulsa, will be in charge of operations.

Phillips Petroleum Co., Bartlesville, Okla., is planning new gasoline refining plant in vicinity of Odessa, Tex., reported to cost in excess of \$100,000, with equipment.

Auto Service Systems, Inc., Houston, Tex., has leased a building at Travis and Calhoun Streets for new service and repair plant, including brake testing and parts departments, and will equip at early date. A one-story addition will be built, 115 x 120 ft. Entire project will cost more than \$90,000. Walter Puckett is vice-president and general manager.

Southwest Tool Supply Co., Big Spring, Tex., plans new factory branch and distributing plant at Forsan, Tex.

## New England

**B**OSTON, Aug. 28.—Although dealers are securing little business, New England machine tool builders generally are operating plants on a normal or better than normal schedule. Some of them are far behind on deliveries. In several instances manufacturers have good export orders. Small tool sales are holding up remarkably well, and indications are those for August will run considerably ahead of the corresponding month last year. The crane market continues lifeless. There is a moderate amount of light conveying equipment selling. It has been a good year for road and concrete machinery, as well as for lifting equipment.

Saco-Lowell Shops, Boston, has practically completed transfer of equipment from Lowell, Mass., to the Biddeford, Me., plant.

Eastern Massachusetts Street Railway Co., 38 Chauncy Street, Boston, has awarded contract for remodeling its South Main Street, Brockton, Mass., repair shop.

Stacy Machine Works, West Springfield, Mass., is about to start a one-story, 40 x 40-ft. plant addition. A. O. Carroll is president.

Work has been started on a one-story and basement, 50 x 125-ft. manufacturing plant addition by Metal Craftsmen, Inc., 101 Georgia Avenue, Providence, R. I.

St. Albans, Vt., is to erect a two-story, 97 x 193-ft. high school to cost, with equipment, \$200,000. It will have manual training and other shops. William H. McLean, 88 Tremont Street, Boston, architect, has completed plans.

Bids closed Aug. 23 on a three-story, 65 x 140-ft. junior high school at Main Street, Agawam, Mass., to contain shops. D. J. Phelps, 57 Reed Street, is superintendent of schools. Paul B. Johnson, 1562 Main Street, Springfield, Mass., is the architect.

Central Maine Power Co., Augusta, Me., will soon begin work on hydroelectric power plant at Burnham, Me., reported to cost in excess of \$500,000 with transmission line.

Aeronautical Products Corporation, Naugatuck, Conn., recently organized with capital of \$500,000, has taken over former local plant of Dunham Mills, Inc., manufacturer of textile products, and will occupy for new works for production of airplane motors. Proposed to provide equipment for initial output of 25 motor units per day. Clarence Austin is secretary; Harris Whittemore, Jr., is treasurer.

Thompson Wire Co., Mildred Avenue, Mattapan, Boston, has awarded general contract to Clark & Smith, Inc., 13 Temple Street, Quincy, Mass., for one-story addition, 60 x 125 ft., reported to cost close to \$50,000 with equipment.

New England Flexible Door Corporation, Winsted, Conn., recently organized,



has concluded negotiations for purchase of former local plant of New England Pin Co., and will improve and occupy for new factory for manufacture of metal and other doors. A fund of \$50,000 has been raised to establish plant and purchase equipment. New England Pin Co. was acquired a number of months ago by Star Pin Co., Derby, Conn., and plant was removed to latter location.

Royal Typewriter Co., New Park Avenue, Hartford, Conn., will begin superstructure for five and six-story and basement addition, L-shaped, 70 x 190 ft., and 70 x 70 ft., to cost more than \$175,000 with equipment. Greenwood & Noerr, Hartford, are consulting engineers.

Colonial Utilities Corporation, Chester, Vt., has been organized to take over Chester Water & Light Co., and 15 other electric light and power, and ice utilities in this vicinity, including Exeter, Rochester and Somersworth, N. H. Properties will be consolidated and expansion program carried out, comprising increase in generating and distributing facilities. New company has arranged for bond issue of \$750,000, considerable portion of proceeds to be used for purpose noted.

## Cincinnati

**C**INCINNATI, Aug. 27.—Bids will be asked early in September by General Aeronautical Corporation, 3336 Trimble Avenue, Cincinnati, for one-story aircraft manufacturing plant at Luken airport, initial unit to be used primarily for assembling, reported to cost more than \$45,000, with equipment. H. Neilson Jackson, Mercantile Library Building, is architect.

Berger Brothers Boiler Works, 257 West Spring Street, Columbus, Ohio, has leased one-story building, 92 x 105 ft., to be erected at 312-22 West Spring Street, for new storage and distributing plant, estimated to cost about \$60,000, with equipment. Bassett & Treselt, 257 East Broad Street, are architects.

Louisville Gas & Electric Co., Louisville, has authorized increase in capital from \$45,000,000 to \$90,000,000, a considerable portion of the fund to be used for expansion in generating and transmission line facilities. T. B. Wilson is vice-president and general manager.

M. D. Larkin Co., 115-21 East Third Street, Dayton, Ohio, manufacturer of machinery and mill supplies, will carry out an expansion and improvement program for increased production. Arrangements are being made for increase in capital from 15,000 to 60,000 shares of stock, no par value, a portion of proceeds to be used for program. Maurice D. Larkin is president.

Armstrong Furnace Co., London, Ohio, is considering plans for new plant unit on Fenniniken Road, Columbus, Ohio, comprising two one-story units, reported to cost more than \$40,000, with equipment. F. B. Armstrong is president.

United States Engineer Office, Chattanooga, Tenn., is asking bids until Sept. 21 for Diesel engine units, complete with generators, exciters, propulsion controls, motors and switchboard, and spare parts.

Formica Insulation Co., 4614 Spring Grove Avenue, Cincinnati, has awarded general contract to Ferro Concrete Construction Co., Cincinnati, for new three-story plant unit reported to cost more than \$80,000, with equipment.

Air Corps, Material Division, Wright Field, Dayton, Ohio, will receive bids un-

til Sept. 5 for one sheet metal cutter, circular 93; for 9000 steel balls, 35,000 asbestos-copper annular gaskets, and quantities of brass chain, steel nails, lead seals, etc., circular 87; until Sept. 4 for 195 sets shielding ignition units, circular 91; for three transformers, four cutouts, knife switch, cable, etc., circular 92; for 100,000 lb. ferrosilicon, circular 88; and until March 7, 1929, for furnishing from two to 200 airplanes.

State Department of Public Welfare, Ninth and Oak Streets, Columbus, Ohio, J. E. Harper, director, will soon take bids for one-story power plant at welfare institution at Apple Creek, estimated to cost \$58,000. H. B. Briggs, Hartman Hotel Building, is architect and engineer.

## Milwaukee

**M**ILWAUKEE, Aug. 27.—While machine-tool business lacks some of the snap which has characterized its progress in recent weeks, the rate of inquiry continues active and there is considerable business in prospect. Meanwhile, production is maintained at a rate limited only by the ability of tool builders to secure skilled help, which is unusually scarce in the machinist trade. Order books are well filled and with new business developing at a moderate rate, output schedules doubtless will continue at the present high rate for some time to come.

McNally-Tollefson Foundry Co., Stoughton, Wis., is about to take bids for the erection of a shop addition costing about \$35,000. Work is to start about Sept. 17. John McNally is president.

Gurney Refrigerator Co., Fond du Lac, Wis., is converting its entire tool drive to electric motors and has purchased a 300-hp. Ridgeway engine and generator. E. G. Vail is president and treasurer.

## Indiana

**I**NDIANAPOLIS, Aug. 28.—Plans are being considered by Auburn Automobile Co., Connersville, Ind., for a new one-story addition, reported to cost more than \$70,000, with equipment.

State Line Generating Co., Hammond, Ind., operated by Commonwealth Edison Co., 72 West Adams Street, Chicago, has made application for permission to issue notes for \$14,000,000, proceeds to be used in connection with new local steam-operated generating plant, now in course of construction and which is scheduled for completion early in 1929. Entire project will cost \$28,500,000, including transmission lines.

Board of Education, Gary, Ind., is considering installation of manual training equipment in new high school at Twenty-fifth and Harrison Streets, estimated to cost \$850,000, for which plans will be drawn by William B. Ittner, 911 Locust Street, St. Louis, architect.

City Council, Indianapolis, is planning establishment of municipal airport, with hangars, repair and reconditioning shops, oil storage and distributing buildings, and other mechanical units, reported to cost about \$500,000, in which amount bond issue is being arranged. A mayor's committee has been appointed, headed by Fred C. Gardner, chairman, to arrange for project.

Midland Utilities Co., Fort Wayne, Ind., operating Indiana Service Corpora-

tion and other electric light and power utilities at South Bend, East Chicago, Gary, Kokomo, Logansport and other cities, is disposing of bond issue of \$6,000,000, a portion of proceeds to be used for extensions and betterments in plants and system.

Northern Indiana Public Service Co., Lafayette, Ind., plans construction of pipe line to vicinity of Crawfordsville, Ind., about 30 miles, reported to cost in excess of \$175,000. Work is now under way on pipe line between South Bend and Elkhart, Ind. Application has been made for permission to issue preferred stock in amount of \$300,000, portion of fund to be used for expansion.

## Canada

**T**ORONTO, ONT., Aug. 27.—At the Canadian National Exhibition, which opened in Toronto on Aug. 24, machine tool builders and dealers from many parts of the world are showing their various lines of equipment. The exhibition of tools and machinery has, as a rule, a stimulating effect on sales during the two weeks they are on display and also tends to strengthen the fall demand. Canadian builders and dealers report a steady demand for tools. More extensive buying is expected from the automotive industry as a result of building plans announced by several companies. Railroads are buying for replacement in car shops, and a few lists are coming out for Canadian National shops at Point St. Charles, Que., and for Western Canada shops of both the Canadian National and Canadian Pacific.

Dominion Lightning Rod Co., Dundas, Ont., is having plans prepared for factory at 63 Main Street.

Chaleur Bay Power Co., Quebec, Que., has awarded contract to T. E. Rousseau, Ltd., 42 Second Avenue, for the construction of power house and dam on Hall River near Bonaventure to cost \$150,000. Langlais, Ricard & Royer, 126 St. Peter Street, Quebec, are the engineers.

Dominion Forge & Stamping Co., Walkerville, Ont., has awarded contract for addition to plant at cost of \$14,000.

Gudie Motor Mfg. Co., 105 Sherbourne Street, Toronto, has awarded contract for \$25,000 plant addition.

Webber Machine Co., 848 Dupont Street, Toronto, Ont., has awarded contract for erection of \$30,000 factory on Birch Avenue.

Flint Paint & Varnish, Ltd., Perth Avenue, Toronto, has awarded contract to Anglin-Norcross, Ltd., Temple Building, for erection of \$150,000 plant addition.

Goodyear Tire & Rubber Co. of Canada, Ltd., New Toronto, Ont., has started work on an addition to its plant there.

New Brass Ware Co. of Canada, Ltd., 2320 Ald Street, Montreal, Que., has awarded contract to the Dakin Construction Co., 270 Beaumont Street, for the erection of a foundry addition, 43 x 100 ft. Foundry equipment not yet purchased.

Willys-Overland, Ltd., Weston Road, Weston, Ont., will build an addition to its plant to be four stories, 60 x 260 ft., for which bids are being received by M. J. Streiffert, engineer.

Jem Rubber Co., 3723 Dundas Street West, Toronto, intends to start work about Sept. 15 on the erection of a manufacturing plant.

Dominion Truck Co., South Street,

Kitchener, Ont., is having plans prepared by B. A. Jones, Ontario Street South, for addition to its plant to cost \$10,000.

Bids are being received by E. G. Patterson, superintendent Canadian General Electric Co., Peterborough, Ont., until Aug. 31 for the construction of a punch press building on Park Street, to be one story, 110 x 328 ft., steel and brick construction. Tenders for tools and equipment will be called later.

Plans are being prepared for the erection of a paper plant at Winnipeg, Man., by the Hinde & Dauch Paper Co., Toronto, Ont., to cost \$1,000,000. Company is looking for a suitable site. O. H. Moore, president and general manager, in confirming the report, said that nothing will be done in the line of construction work until spring.

Canadian Industries, Ltd., Toronto, Ont., is having plans prepared for the erection of a factory at Regina, Sask.

## Pacific Coast

SAN FRANCISCO, Aug. 24.—Permission has been secured by Yuba River Power Co., 225 Bush Street, San Francisco, to proceed with hydroelectric power development on North and Middle Forks of Yuba River, consisting of five generating stations near Sierra City, near Downieville, near Ramshorn, Garden Valley and in vicinity of Narrows, to develop total capacity of 261,000 hp. Entire project is estimated to cost more than \$35,000,000, including transmission lines.

Fluid Packed Pump Co., Los Nietos, Cal., has plans for a new one-story machine shop at Norwalk and Puente Mills Roads, Santa Fe Springs district.

Baash-Ross Tool Co., 5512 South Boyle Avenue, Vernon, Cal., has awarded general contract to Modern Iron Works, 4850 Pacific Boulevard, for a one-story addition, to be equipped as a machine shop.

Northwest Lead Co., 1742 Fourth Avenue, South, Seattle, has awarded general contract to H. D. Stewart, 702 First Avenue, South, for one-story plant unit, reported to cost about \$25,000, with equipment.

Pacific Woodenware Co., Marysville, Wash., manufacturer of utensils, etc., is considering rebuilding of portion of plant destroyed by fire Aug. 15, with loss reported at \$70,000, including equipment.

Golden Gate Iron Works, San Francisco, recently organized by Charles S. Hoffman and L. W. Fleigner, plans operation of general iron-working plant at 1541 Howard Street.

United Engineering & Drydock Co., San Francisco, has concluded negotiations for purchase of shipbuilding and repair plant of Daniel J. Hanlon Co., Oakland, for reported consideration of \$750,000, and will operate new shipyard at that location. Extensions and improvements are planned, with installation of additional equipment. George Armes, head of purchasing company, was formerly chief engineer of Union Iron Works, San Francisco, acquired by Bethlehem Steel Co., Bethlehem, Pa., a few years ago.

Department of Public Utilities, Spokane, Wash., Charles Hedger, commissioner, is planning establishment of municipal airport, including hangars, repair and reconditioning shop, oil storage and distributing building, and other mechanical units, estimated to cost about \$75,000.

An appropriation in such amount is being arranged.

Board of Education, Los Angeles, has filed plans for one-story addition to vocational training shop at George Washington High School, Normandie Avenue, to cost more than \$50,000, with equipment. W. J. Dodd and William Richards, Architects Building, are architects.

## Foreign

PROPOSITION is being considered by State Government, Melbourne, Australia, recommended by Victorian Electricity Commission, for construction of new steam-operated electric power plant at Yallourn, comprising three 25,000 kw. generating units and auxiliary equipment to cost more than \$9,000,000. Of this sum, power station machinery will represent about \$6,000,000, switch gear and accessories \$1,000,000, and transmission lines, \$1,500,000, remainder being used for miscellaneous work.

Company in Czechoslovakia is planning construction of new railroad line between Pilsen and Brunn, with locomotive terminals and repair shops, coaling stations and other facilities, to cost close to \$18,000,000. Information at office of Bureau of Foreign and Domestic Commerce, Washington, reference Czechoslovakia, No. 71567.

Victor Talking Machine Co., Camden, N. J., has approved plans for new branch plant at Sao Paulo, Brazil, to cost close to \$500,000, with equipment. Unit is scheduled to be ready for service early in coming year. A subsidiary interest

under name of Victor Talking Machine Co. of Brazil, Ltd., is being formed to carry out the project. Wilson R. Buie will be in charge of construction.

Following completion of new power plant at Congella, Durban, South Africa, with capacity of 36,000 kw., now in progress, Government of Union of South Africa, Durban, plans an early expansion in output in connection with proposed electrification of Government railways from Durban to Pietermaritzburg.

Municipal Government, Medellin, Colombia, has secured approval for a loan of \$13,000,000, a considerable portion of the fund to be used for purchase of materials and supplies for municipal public utilities, including the development of a hydroelectric power project at Guadalupe.

Government of Afghanistan, Cabul, is considering construction of railroad line from that city to Indian frontier, to include locomotive terminals and repair shops, coaling stations and other mechanical facilities. Surveys are projected at early date. Estimates of cost and preliminary details now under advisement.

Khimugol Syndicate (Chemical Coal Trust), Petrograd, Russia, has arranged an appropriation of \$8,800,000 for capital construction during coming fiscal year, fund to be used in part for construction of hydroelectric power plant at Don Basin, and glass manufacturing works. Information at office of American-Russian Chamber of Commerce, 145 West Fifty-seventh Street, New York.

## Front of Factory Ornamented with Samples of Its Iron Work

*THE entire front of the plant of the William E. McConologue Co., San Francisco, has been decorated with samples of the ornamental iron work built within the*

*plant. Window gratings are placed over the windows with wire screen, as shown to the right, while other samples are arranged on the remaining section of the building.*

